

# **Appendix G**

## **City and County Resolutions**

## APPENDIX G – CITY – COUNTY RESOLUTIONS



# **Appendix H**

**Public Meeting Minutes,  
Public Meeting Presentation,  
Attendance Roster,  
Public Comments,  
Affidavit of Publication,  
and The Meade County  
Messenger Tear Sheets**

## Notice of Public Hearing

(Pursuant to 401KAR5:006 Section 4 & 5; KRS-424; and 40CFR 25.5 & 6)

The City of Brandenburg, 737 High Street, P.O. Box 305, Brandenburg, Kentucky 40108 has drafted a 20-year Regional Facilities Plan (RFP) containing wastewater requirements for collection and treatment, as well as its cost, within the planning area, as described therein, to be served. Interested citizens may obtain further information including copies of the draft RFP by contacting the City at the above address or by calling (270) 422-4981 between 8:00 a.m. and 4:30 p.m., Monday through Friday. The RFP can be viewed at City Hall, 737 High Street between 8:00 a.m. and 4:30 p.m., Monday through Friday.

A public hearing will be held on Monday, January 11<sup>th</sup>, 2021 at 6:00 p.m. local time in the Council Chambers of City Hall located at 737 High Street in Brandenburg, Kentucky. The purpose of the hearing is to discuss the draft plan and its contents, specifically the reason for RFP, alternatives considered, the selected plan, project costs, financing sources, and user charges. This project may affect sewer rates. The public is encouraged to attend this meeting and shall have a right to comment on the plan for a period of 30 days from the date of publication of the notice by writing to the above address or before the termination of the hearing whichever is later. A longer comment period may be requested in writing. All persons who believe any condition of the draft plan is inappropriate, inaccurate, incomplete, or otherwise not in the best interest of the public and environment must raise all reasonable issues and submit all reasonable arguments, facts and comments with supporting documents to the above given contact.

# **Appendix I**

## **Design Calculations**



**Brandenburg WWTP**  
**Brandenburg, Kentucky**  
**Disinfection Contact Tank Calculations**

**Contact Time Goals**

Design Average Flow            30 min  
 Historic Average Flow        60 min  
 Design Peak Flow            20 min

Channel Width                    **4.75**    ft  
 Channel Depth                    **5**       ft

Half of Tank Volume:            **1349.75**   ft<sup>3</sup>

Designed for Design Average at 30 min.			
Design Average			
t <sub>c</sub>	29.08	Minutes	
Q <sub>avg</sub>	<b>0.5</b>	MGD	
Depth	<b>5</b>	Feet	
Volume =	Q*t <sub>c</sub> =	10,096.13	Gallons
	=	<b>1,349.75</b>	FT <sup>3</sup>
Area =	269.95		
Historic Average (2017-2020)			
t <sub>c</sub>	62.40	Minutes	
Q <sub>avg</sub>	<b>0.233</b>	MGD	
Depth	<b>5</b>	Feet	
Volume =	Q*t <sub>c</sub> =	10,096.13	Gallons
	=	<b>1,349.75</b>	FT <sup>3</sup>
Area =	269.95		

Full Tank Volume:                **2699.5**    ft<sup>3</sup>

Designed for Design Peak at 20 min.			
Design Peak			
t <sub>c</sub>	19.38	Minutes	
Q <sub>avg</sub>	<b>1.5</b>	MGD	
Depth	<b>5</b>	Feet	
Volume =	Q*t <sub>c</sub> =	20,192.26	Gallons
	=	<b>2,699.50</b>	FT <sup>3</sup>
Area =	539.90		
Historic Peak (2017-2020)			
t <sub>c</sub>	41.72	Minutes	
Q <sub>max</sub>	<b>0.697</b>	MGD	
Depth	<b>5</b>	Feet	
Volume =	Q*t <sub>c</sub> =	20,192.26	Gallons
	=	<b>2,699.50</b>	FT <sup>3</sup>
Area =	539.90		

**Brandenburg WWTP  
Brandenburg, Kentucky  
Solids Handling Calculations**

**Sludge Generation at Average Daily Design Flow**

Influent TSS Load = ADF (MGD) \* Influent TSS Conc (mg/L) \* 8.34  
Average Daily Design Flow 0.5 MGD  
Average Influent TSS (July 2017 - June 2020) 307 mg/L

Influent TSS Load **1,280 lbs/day**

**Inert Solids to Remove (Not Volatile)**

Inert Solids = 20% of Influent TSS  
Inert Solids **256 lbs/day**

**Non-Biodegradable VSS (NBVSS) to Remove**

NBVSS = Influent TSS (lbs/day) \* 0.8 VSS \* 0.4 NBVSS  
NBVSS **410 lbs/day**

Note: 80% of influent TSS is composed of VSS and 40% of the VSS is non-biodegradable VSS  
Non-biodegradable VSS is composed of trash, fibers, hair, lint, paper, and plastic

**WAS to Remove**

Total solids yield typically 0.85 (Biological + Inerts + NBVSS)  
Average Influent BOD (July 2017 - June 2020) 361 mg/L  
BOD limit per wasteload allocation 30 mg/L  
WAS = ADF (MGD) \* BOD removal (mg/L) \* yield \* 8.34

WAS **1,280 lbs/day**

Note: Assume all BOD is removed by process.

**Polymer to Remove**

Assumed Polymer Dose 18 lbs/ton dry solids  
Ton Dry Solids = WAS + Chemical Phosphorus Removal (N/A)  
Ton Dry Solids **0.64 ton/day**

Polymer **11.5 lbs/day**

**Solids from Clarifier to Aerated Sludge Holding Tank**

Solids = WAS + Chemical Phosphorus Removal (N/A)  
Solids **1,280 lbs/day**

Solids Flow = solids (lbs/day) / (% solids by weight \* 8.32 lbs/gal)  
Assumed Solids by Weight **1.5%**

Solids Flow **10,253 gal/day**

## Solids Handling Calculations (cont.)

### Aerated Sludge Holding Tank Volume

Number of days holding time per 10 States 4

Working Tank Volume = Solids Flow (gal/day) \* Holding Time (days)

Needed Tank Volume **41,012** gallons

Length 30

Width 27

Depth 11

Proposed Total Tank Vol **66,647** gallons  
8,910 cu ft

Assumed Freeboard 1.50 ft

Assumed Min Operating Level Tank 2.00 ft

Proposed Working Volume 6,075 cu ft  
**45,441** gal

Hydraulic Detention Time = Proposed Working Tank Volume (gallons) / Solids Flow (gal/day)

Hydraulic Detention Time **4.43** days

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### Aeration Required for Sludge Holding Tank

30 cfm/1,000 cu ft Per 10 States

Aeration = Tank Volume (cu ft) \* (30 cfm/1000 cu ft)

Aeration **267.3** cfm

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### Solids from Aerated Sludge Holding Tank to Dewatering

Solids = WAS + Polymer

Solids **1,291** lbs/day

Assumed Solids by Weight **1.5%**

Volume = solids (lbs/day) / (solids by weight \* 8.32 lbs/gal)

Volume **10,320** gal/day

Volume **72,243** gal/week

Flow Rate = Volume (gal/day) / ((hours run/day)\*(60 min/hour))

Assume Dewatering Unit Runs 10.7 hours/day

Assume Dewatering Unit Runs 5 days/week

Flow Rate to Press **23** gal/min if dewatering 5 days/week

## Solids Handling Calculations (cont.)

### Solids to Landfill

Dry Solids = Inerts + Non-Biodegradable VSS + WAS + Polymer

Dry Solids                      1,291 lbs/day  
                                     9,038 lbs/week

Run Time Per Week              54 hrs

Dry Solids                      169 lbs/hr

No. of Channels in Press              2

Dry Solids per Channel              84 lbs/hr

Assume                      18.0% Solids from Dewatering

Dry Solids                      1,808 lbs/day      if dewatering 5 days/week

Wet Solids                      10,042 lbs/day      if dewatering 5 days/week

                                     5.0 tons/day      if dewatering 5 days/week

Assumed Weight                      80 lbs/cu ft  
of Wet Solids

Total Solids Volume                      126 cu ft/day  
to Landfill                      4.65 cu yds/day



# **Appendix J**

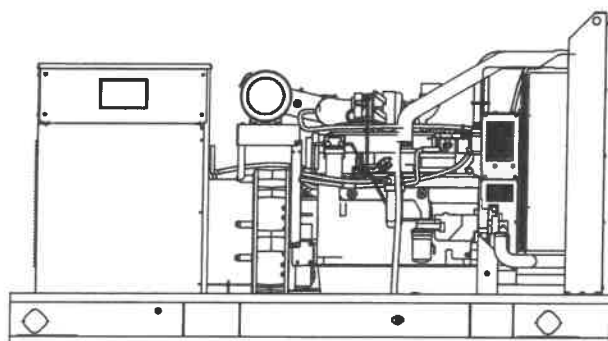
## **Equipment Brochures**



### Tier 3 EPA-Certified for Stationary Emergency Applications

### Ratings Range

		60 Hz
Standby:	kW	168-200
	kVA	195-250
Prime:	kW	158-180
	kVA	175-225



### Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4S13X	120/208	3	60	184/230	638	173/216	600
	127/220	3	60	194/243	636	180/225	590
	120/240	3	60	184/230	553	173/216	520
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	168/210	319	158/198	300
	277/480	3	60	200/250	301	180/225	271
4UA9	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
4UA13	347/600	3	60	200/250	241	180/225	217
	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	120/240	1	60	195/195	813	175/175	729
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. **Standby Ratings:** The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. **Prime Power Ratings:** At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TiB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

### Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator. (4S13X alternator)
  - The unique Fast-Response® II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator. (4UA9 and 4UA13 alternators)
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - Multiple circuit breaker configurations.
  - Mount up to three circuit breakers to allow circuit protection of selected priority loads.

## Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4SX, 4UA	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications	Alternator
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4S13X (12 lead)	570
480 V 4UA9 (12 lead)	700
480 V 4UA13 (12 lead)	960

## Application Data

### Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	6068HFG85A
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	6.8 (415)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	17.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	235 (315)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP3
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

### Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	42.8 (1510)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	527 (980)
Maximum allowable back pressure, kPa (in. Hg)	Min. 4 (1.2) Max. 10 (3.0)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

### Engine Electrical

Engine Electrical System	
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 950
Battery voltage (DC)	12

### Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Mechanical, 1.8 (6.0)
Max. fuel flow, Lph (gph)	92.7 (24.5)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Manual
Fuel filter	
Primary	30 Microns
Secondary	2 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel

### Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	32.5 (34.4)
Oil pan capacity with filter, L (qt.) §	33.4 (35.3)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Water-Cooled
§ Kohler recommends the use of Kohler Genuine oil and filters.	

## Application Data

### Cooling

#### Radiator System

Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	11.3 (3.0)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	230.9 (61)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	94.2 (5360)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	56.1 (3190)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	787 (31)
Fan, kWm (HP)	8.6 (11.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

### Operation Requirements

#### Air Requirements

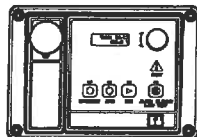
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	368.1 (13000)
Combustion air, m <sup>3</sup> /min. (cfm)	17.6 (620)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	46.9 (2670)
Alternator, kW (Btu/min.)	18.5 (1050)

‡ Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

#### Fuel Consumption

Diesel, Lph (gph) at % load	Standby Rating	
100%	58.0	(15.3)
75%	43.3	(11.4)
50%	31.4	(8.3)
25%	19.7	(5.2)
Diesel, Lph (gph) at % load	Prime Rating	
100%	50.1	(13.2)
75%	36.1	(9.5)
50%	25.7	(6.8)
25%	16.6	(4.4)

### Controllers



#### APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

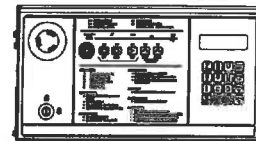


#### APM603 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.



#### Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

BACnet® is a registered trademark of ASHRAE.

## Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection  
 (standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Circuit Breakers

- | Type  | Rating   |
|---|--|
| <input type="checkbox"/> Magnetic Trip                            | <input type="checkbox"/> 80%                                     |
| <input type="checkbox"/> Thermal Magnetic Trip                    | <input type="checkbox"/> 100%                                    |
| <input type="checkbox"/> Electronic Trip (LI)                     | <b>Operation</b>   |
| <input type="checkbox"/> Electronic Trip with Short Time (LSI)    | <input type="checkbox"/> Manual                                  |
| <input type="checkbox"/> Electronic Trip with Ground Fault (LSIG) | <input type="checkbox"/> Electrically Operated (for paralleling) |

### Circuit Breaker Mounting

- ☐ Generator Mounted
- ☐ Remote Mounted
- ☐ Bus Bar (for remote mounted breakers)

### Enclosures for Remote Mounted Circuit Breakers

- ☐ NEMA 1
- ☐ NEMA 3R

### Approvals and Listings

- ☐ California OSHPD Approval
- ☐ CSA Certified
- ☐ IBC Seismic Certification
- ☐ UL 2200 Listing
- ☐ Hurricane Rated Enclosure

### Enclosed Unit

- ☐ Sound Enclosure (with enclosed critical silencer)
- ☐ Weather Enclosure (with enclosed critical silencer)

### Open Unit

- ☐ Exhaust Silencer, Critical (kit: PA-354809)
- ☐ Flexible Exhaust Connector, Stainless Steel

### Fuel System

- ☐ Flexible Fuel Lines
- ☐ Fuel Pressure Gauge
- ☐ Subbase Fuel Tanks

### Controller

- ☐ Common Failure Relay  
 (Decision-Maker® 6000 and APM603 controllers only)
- ☐ Decision-Maker® Paralleling System (DPS)  
 (Decision-Maker® 6000 controller only)
- ☐ Dry Contact (isolated alarm)  
 (Decision-Maker® 6000 controller only)
- ☐ Two Input/Five Output Module (APM402 controller only)
- ☐ Four Input/Fifteen Output Module (APM603 controller only)
- ☐ Lockable Emergency Stop Switch
- ☐ Remote Emergency Stop Switch
- ☐ Remote Serial Annunciator Panel
- ☐ Run Relay (standard with APM603, optional with others)
- ☐ Manual Key Switch (APM603 controller only)
- ☐ Manual Speed Adjust (APM402 controller only)

### Cooling System

- ☐ Block Heater, 1800 W, 90- 120 V, 1 Ph
- ☐ Block Heater, 2000 W, 190- 240 V, 1 Ph  
 Required for ambient temperature below 0°C (32°F)
- ☐ Radiator Duct Flange

### Electrical System

- ☐ Generator Heater
- ☐ Battery
- ☐ Battery Charger, Equalize/Float Type
- ☐ Battery Heater

### Miscellaneous

- ☐ Air Cleaner, Heavy Duty
- ☐ Air Cleaner Restriction Indicator
- ☐ Certified Test Report
- ☐ Crankcase Emissions Canister
- ☐ Engine Fluids Added
- ☐ Rated Power Factor Testing
- ☐ Rodent Guards

### Literature

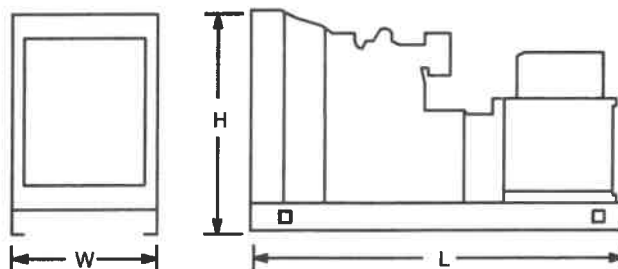
- ☐ General Maintenance
- ☐ NFPA 110
- ☐ Overhaul
- ☐ Production

### Warranty

- ☐ 2-Year Basic Limited Warranty
- ☐ 5-Year Basic Limited Warranty
- ☐ 5-Year Comprehensive Limited Warranty

## Dimensions and Weights

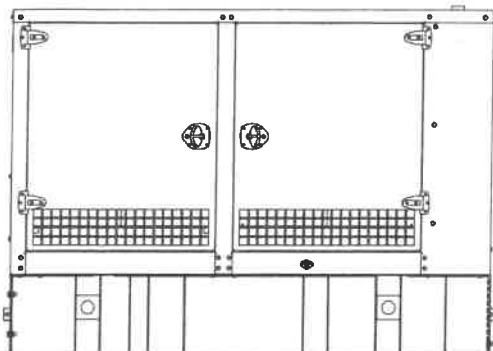
Overall Size, L x W x H, mm (in.): 3000 x 1300 x 1672  
 (118.1 x 51.2 x 65.8)  
 Weight (radiator model), wet, kg (lb.): 1923 (4240)



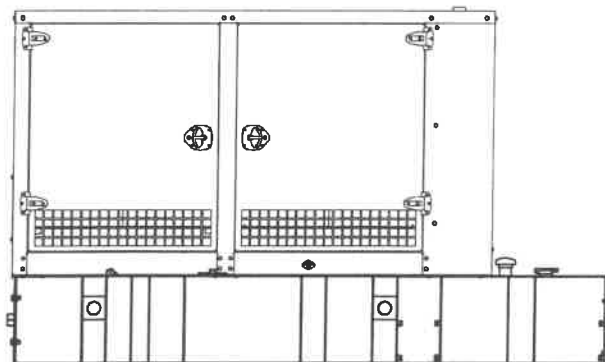
NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

## DISTRIBUTED BY:

### Weather/Sound Enclosure and Subbase Fuel Tank Package



**Enclosure with Standard Subbase Fuel Tank**



**Enclosure with State Code Subbase Fuel Tank**

#### Available Approvals and Listings

- ☐ UL 2200 Listing
- ☐ CSA Certified
- ☐ IBC Seismic Certification \*
- ☐ California OSHPD Approval \*
- ☐ cUL Listing (fuel tanks only)
- ☐ Hurricane Rated Enclosure - Available on sound aluminum 180- 300kW models.  
(Impact rated for Large Missile Level E and Wind load rated per Florida Building Code tested to TAS201- 94, TAS202- 94 and TAS203- 94 standards)

**NOTE:** Some models may have limited third-party approvals; see your local distributor for details.

\* Requires a state code subbase fuel tank selection.

#### Applicable to the following:

**40REOZJC  
50/60REOZJD  
80/100/150/200REOZJF  
125/180REOZJG  
230- 275REOZJE  
300REOZJ**

#### Weather Enclosure Standard Features

- Internal-mounted silencer and flexible exhaust connector.
- Lift base or tank-mounted, steel construction with hinged doors.
- Fade-, scratch-, and corrosion-resistant Kohler® Power Armor™ automotive-grade textured finish.
- Enclosure has four access doors which allow for easy maintenance.
- Lockable, flush-mounted door latches.
- Vertical air inlet and outlet discharge to redirect air and reduce noise.
- Weather enclosure is designed to 150 mph (241 kph) wind load rating.

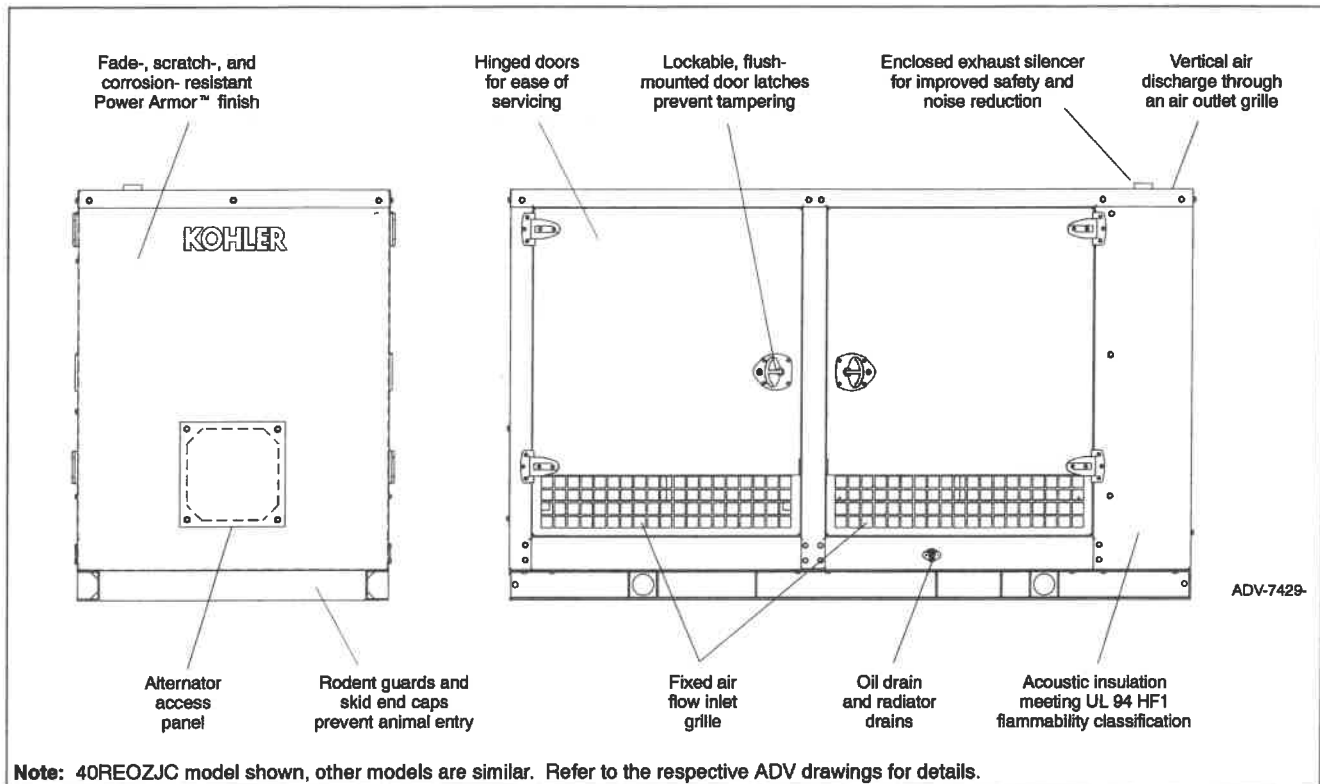
#### Sound Enclosure Standard Features

- Includes all of the weather enclosure features with the addition of acoustic insulation material.
- Lift base or tank-mounted, steel or aluminum construction with hinged doors. Aluminum enclosures are recommended for high humidity and/or high salt/coastal regions.
- Acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- Sound-attenuated enclosure that uses up to 51 mm (2 in.) of acoustic insulation.
- Steel sound enclosure is designed to 150 mph (241 kph) wind load rating.
- Aluminum sound enclosure is certified to 186 mph (299 kph) wind load rating for 80- 150REOZJ models.
- Aluminum sound enclosure is certified to 181 mph (291 kph) wind load rating for 180- 300REOZJ models.

#### Subbase Fuel Tank Features

- The fuel tank has a Power Armor Plus™ textured epoxy-based rubberized coating.
- The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).
- Both the inner and outer tanks have emergency relief vents.
- Flexible fuel lines are provided with subbase fuel tank selection.
- The secondary containment generator set base tank meets UL 142 tank requirements. The inner (primary) tank is sealed inside the outer (secondary) tank. The outer tank contains the fuel if the inner tank leaks or ruptures.
- State tanks with varying capacities are an available option. Florida Dept. of Environmental Protection (FDEP) File No. EQ-634 approved.

## Weather and Sound Enclosure



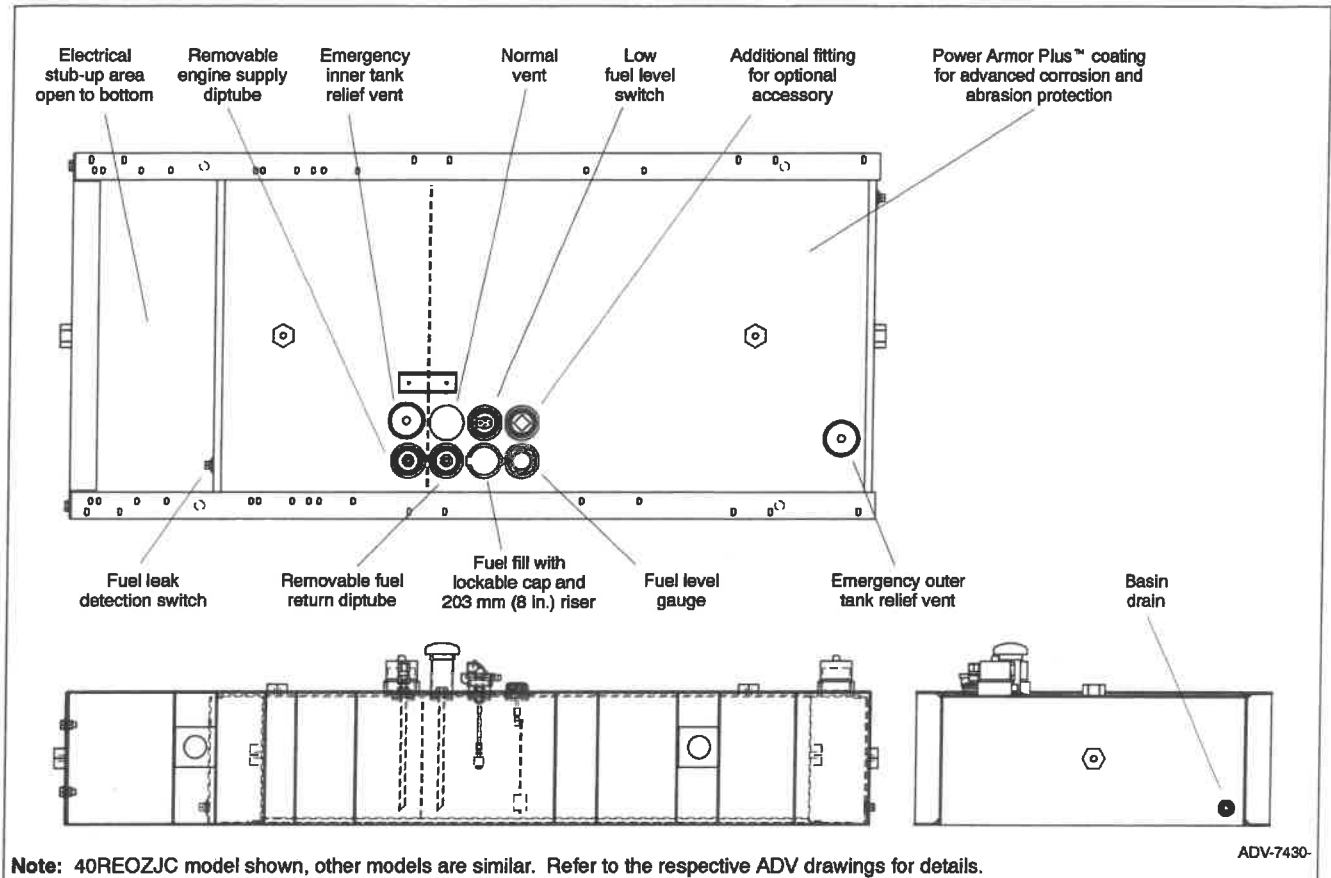
## Enclosure Features

- Available in steel (14 gauge) formed panel, solid construction. Preassembled package offering corrosion resistant, dent resilient structure mounting directly to lift base or fuel tank.
  - Power Armor™ automotive-grade finish resulting in advanced corrosion and abrasion protection as well as enhanced edge coverage and color retention.
  - Internal exhaust silencer offering maximum component life and operator safety.
  - Interchangeable modular panel construction. Allows complete serviceability or replacement without compromising enclosure design.
  - Cooling/combustion air intake with a horizontal air inlet. Sized for maximum cooling airflow.
  - Service access. Multi-personnel doors for easy access to generator set control and servicing of the fuel fill, fuel gauge, oil fill, and battery.
  - Cooling air discharge. Weather protective design featuring a vertical air discharge outlet grille. Redirects cooling air up and above enclosure to reduce ambient noise.
- NOTE:** Installing an additional length of exhaust tail pipe may increase backpressure levels. Please refer to the generator set spec sheet for the maximum backpressure value.

## Additional Sound Enclosure Features

- Available in steel (14 gauge) or aluminum 3.2 mm (0.125 in.) formed panel, solid construction.
- Sound-attenuated design. Acoustic insulation UL 94 HF1 listed for flame resistance offering up to 51 mm (2 in.) mechanically restrained acoustic insulation.
- Cooling air discharge. The sound enclosures include acoustic insulation with urethane film.
- Snow package enclosure is designed to meet NFPA 110 requirement to -20°C (-4°F).

## Subbase Fuel Tank



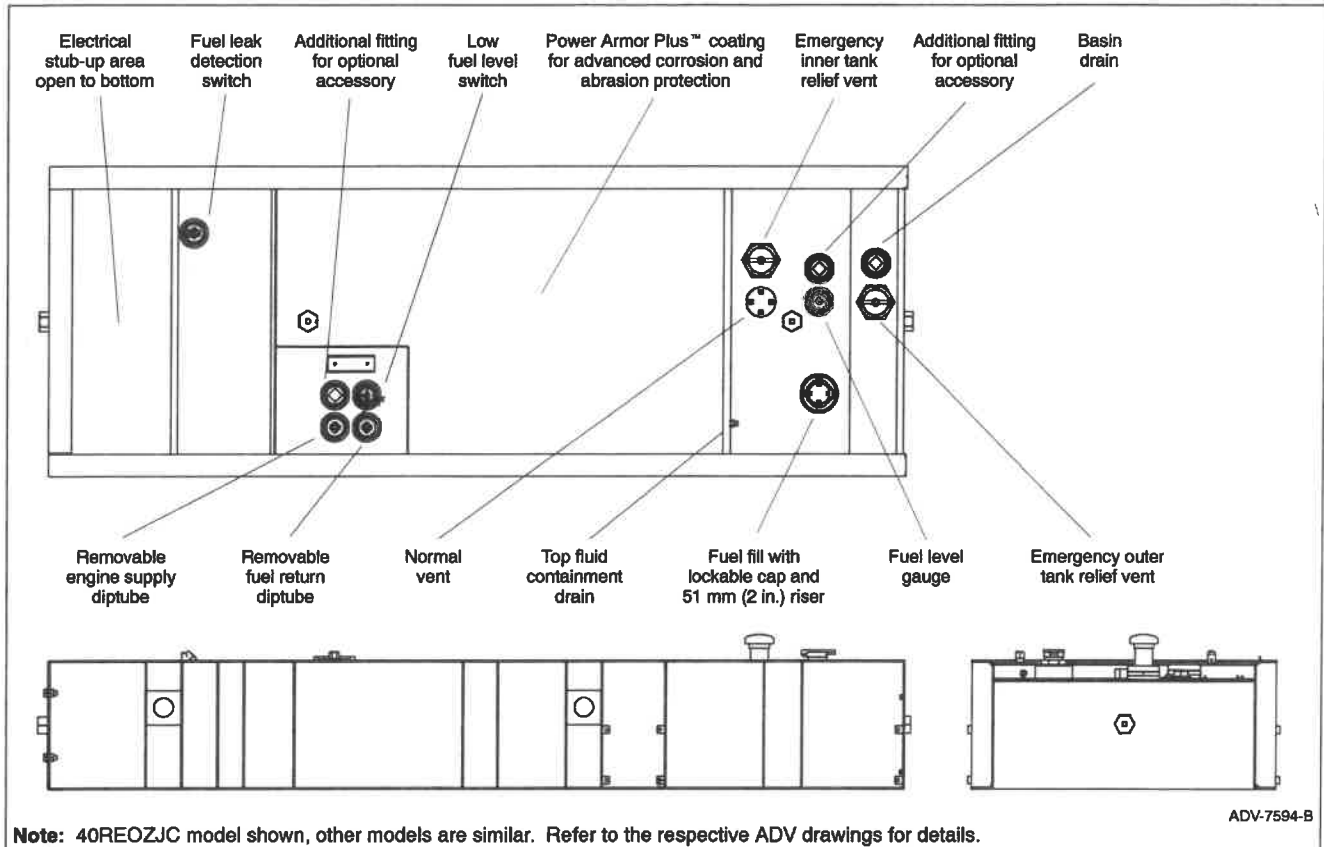
## Standard Subbase Fuel Tank Features

- Extended operation. Usable tank capacity offers full load standby operation of up to 96 hours on select models.
- Power Armor Plus™ textured epoxy-based rubberized coating that creates an ultra-thick barrier between the tank and harsh environmental conditions like humidity, saltwater, and extreme temperatures, and provides advanced corrosion and abrasion protection.
- UL listed. Secondary containment generator set base tank meeting UL 142 requirements.
- NFPA compliant. Designed to comply with the installation standards of NFPA 30 and NFPA 37.
- Integral external lift lugs. Enables crane with spreader-bar lifting of the complete package (empty tank, mounted generator set, and enclosure) to ensure safety.
- Emergency pressure relief vents. Vents ensure adequate venting of the inner and outer tank under extreme pressure and/or emergency conditions.
- Normal vent with cap. Vent is raised above lockable fuel fill.
- Low fuel level switch. Annunciates a 50% low fuel level condition at generator set control.
- Leak detection switch. Annunciates a contained primary tank fuel leak condition at generator set control.
- Electrical stub-up.

**NOTE:** For IBC Seismic Certification and/or California OSHPD Approval, see State Code Subbase Fuel Tank.



## State Code Subbase Fuel Tank



## State Code Subbase Fuel Tank Features

- State tank designed to comply with the installation standards of the Florida Dept. of Environmental Protection (FDEP) File No. EQ-634.
- Includes all of the Standard Subbase Fuel Tank Features.

## State Code Subbase Fuel Tank Options

### Bottom Clearance

- ☐ I-beams, provides 106 mm (4.2 in.) of ground clearance

### Fuel In Basin Options

- ☐ Fuel in basin switch, Florida Dept. of Environmental Protection (FDEP) File No. EQ-682 approved

### Fuel Fill Options

- ☐ Fill pipe extension to within 152 mm (6 in.) of bottom of fuel tank.
- ☐ 18.9 L (5 gallon) spill containment with 95% shutoff
- ☐ 18.9 L (5 gallon) spill containment
- ☐ 18.9 L (5 gallon) spill containment fill to within 152 mm (6 in.) of bottom of fuel tank
- ☐ 28.4 L (7.5 gallon) spill containment, Florida Dept. of Environmental Protection (FDEP) File No. EQ-882 approved
- ☐ 28.4 L (7.5 gallon) spill containment with 95% shutoff, Florida Dept. of Environmental Protection (FDEP) File No. EQ-882/ EQ-883 approved

### Fuel Supply Options

- ☐ Fire safety valve (installed on fuel supply line)
- ☐ Ball valve (installed on fuel supply line)

### High Fuel Level Switch

- ☐ High fuel level switch
- ☐ High fuel level switch, Florida Dept. of Environmental Protection (FDEP) File No. EQ-682 approved

### Normal Vent Options

- ☐ 3.7 m (12 ft.) above grade (without spill containment)
- ☐ 3.7 m (12 ft.) above grade (with spill containment)

### Tank Marking Options

- ☐ Decal, Combustible Liquids - Keep Fire Away (qty. 2)
- ☐ Decal, NFPA 704 identification (qty. 2)
- ☐ Decal, tank number and safe fuel fill height (qty. 2)
- ☐ Decal, tank number and safe fuel fill height, NFPA 704 identification

### Fluid Containment Options

- ☐ 100% engine fluid containment

### Third-Party Approvals

- ☐ IBC Seismic Certification
- ☐ California OSPHD Approval

## Enclosure and Subbase Fuel Tank Specifications

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load, Nominal/ Actual	Enclosure and Subbase Fuel Tank					Fuel Tank Height (or additional skid height with no tank), mm (in.)	Sound Pressure Level at 60 Hz with Full Load, Weather/ Sound, dB(A)‡
		Max. Dimensions, mm (in.)			Max. Weight, kg (lb.) *			
		Length	Width	Height	With Steel Enclosure	With Aluminum Enclosure		
40REOZJC Standard Fuel Tank								
No Tank	0	2320 (91.3)	1077 (42.4)	1521 (60.0)	966 (2130)	853 (1880)	100 (4)	78/65
424 (112)	24/32			1827 (71.9)	1223 (2697)*	1110 (2447)*	406 (16)	
621 (164)	48/48			1980 (78.0)	1274 (2809)*	1161 (2559)*	559 (22)	
946 (250)	72/73			2234 (88.0)	1555 (3429)*	1442 (3179)*	813 (32)	
40REOZJC State Code Fuel Tank †								
439 (116)	24/34	2896 (114)	1077 (42.4)	1883 (74.1)	1451 (3199)*	1338 (2949)*	356 (14)	78/65
958 (253)	72/74			2213 (87.1)	1575 (3472)*	1462 (3222)*	686 (27)	
50REOZJD Standard Fuel Tank								
No Tank	0	2320 (91.3)	1077 (42.4)	1521 (59.9)	1027 (2265)	914 (2015)	100 (4)	78/66
424 (112)	24/26			1827 (71.9)	1285 (2832)*	1171 (2582)*	406 (16)	
621 (164)	36/38			1980 (78.0)	1335 (2944)*	1222 (2694)*	559 (22)	
946 (250)	48/58			2234 (88.0)	1555 (3429)*	1442 (3179)*	813 (32)	
50REOZJD State Code Fuel Tank †								
439 (116)	24/26	2896 (114)	1077 (42.4)	1883 (74.1)	1529 (3371)*	1416 (3121)*	356 (14)	78/66
958 (253)	48/58			2213 (87.1)	1653 (3644)*	1540 (3394)*	686 (27)	
1408 (372)	72/86			2441 (96.1)	1804 (3977)*	1691 (3727)*	914 (36)	
60REOZJD Standard Fuel Tank								
No Tank	0	2320 (91.3)	1077 (42.4)	1521 (59.9)	1164 (2566)	1051 (2316)	100 (4)	78/68
492 (130)	24/26			1878 (73.9)	1438 (3170)*	1324 (2920)*	457 (18)	
783 (207)	36/41			2107 (83.0)	1514 (3338)*	1401 (3088)*	686 (27)	
946 (250)	48/50			2234 (88.0)	1555 (3429)*	1442 (3179)*	813 (32)	
60REOZJD State Code Fuel Tank †								
556 (147)	24/29	2895 (114)	1077 (42.4)	1959 (77.1)	1616 (3563)*	1503 (3313)*	432 (17)	78/68
958 (253)	48/50			2213 (87.1)	1767 (3896)*	1654 (3646)*	686 (27)	
1408 (372)	72/74			2441 (96.1)	1918 (4228)*	1805 (3978)*	914 (36)	
80REOZJF Standard Tank								
No Tank	0	2821 (111.1)	1156 (45.5)	1723 (67.8)	1483 (3269)	1351 (2979)	150 (6)	83/69
791 (209)	24/30			2081 (81.9)	1766 (3894)*	1635 (3604)*	508 (20)	
1317 (348)	48/50			2386 (93.9)	1882 (4150)*	1751 (3860)*	813 (32)	
80REOZJF State Code Fuel Tank †								
814 (215)	24/31	3400 (133.9)	1156 (45.5)	2111 (83.1)	1996 (4400)*	1864 (4110)*	432 (17)	83/69
1571 (415)	48/60			2441 (96.1)	2236 (4929)*	2104 (4639)*	762 (30)	
3089 (816)	96/113			2536 (99.8)	3058 (6741)*	2933 (6466)*	813 (32.0)	

**Note:** Data in table is for reference only, refer to the respective ADV drawings for details.

\* Max. weight includes the generator set (wet) using the largest alternator option, enclosure with acoustic insulation added, silencer, and tank (no fuel).

† State code fuel tank specifications (height and weight) include I-beam option.

‡ Log average sound pressure level of 8 measured positions around the perimeter of the unit at a distance of 7 m (23 ft). Refer to TIB-114 for details.

## Enclosure and Subbase Fuel Tank Specifications (continued)

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load, Nominal/ Actual	Enclosure and Subbase Fuel Tank					Fuel Tank Height (or additional skid height with no tank), mm (In.)	Sound Pressure Level at 60 Hz with Full Load, Weather/ Sound, dB(A)‡
		Max. Dimensions, mm (In.)			Max. Weight, kg (lb.) *			
		Length	Width	Height	With Steel Enclosure	With Aluminum Enclosure		
100REOZJF Standard Tank								
No Tank	0	2821 (111.1)	1156 (45.5)	1723 (67.8)	1592 (3510)	1461 (3220)	150 (6)	82/69
791 (209)	24/25			2081 (81.9)	1875 (4134)*	1744 (3844)*	508 (20)	
1696 (448)	48/54			2386 (93.9)	2070 (4564)*	1939 (4274)*	813 (32)	
100REOZJF State Code Fuel Tank †								
814 (215)	24/26	3400 (133.9)	1156 (45.5)	2111 (83.1)	2105 (4641)*	1974 (4351)*	432 (17)	82/69
1571 (415)	48/50			2441 (96.1)	2345 (5170)*	2214 (4880)*	762 (30)	
3089 (816)	96/96	3607 (142.0)	1829 (72.0)	2536 (99.8)	3167 (6981)*	3042 (6706)*	813 (32.0)	
125REOZJG Standard Fuel Tank								
No Tank	0	3532 (139.0)	1153 (45.4)	1739 (68.5)	1651 (3632)	1515 (3333)	0 (0)	87/73
1128 (298)	24/30			2222 (87.5)	2400 (5280)*	2264 (4981)*	483 (19)	
2207 (583)	48/58			2653 (104.4)	2751 (6052)*	2615 (5753)*	914 (36)	
125REOZJG State Code Fuel Tank †								
1196 (316)	24/31	4414 (173.8)	1153 (45.4)	2328 (91.7)	2382 (5240)*	2446 (4941)*	483 (19)	87/73
2252 (595)	48/60			2683 (105.6)	2654 (5839)*	2500 (5511)*	838 (33)	
4403(1163)	96/113	4445 (175.0)	1829 (72.0)	2654 (104.5)	3707 (8173)*	3571 (7873)*	914 (36.0)	
150REOZJF Standard Fuel Tank								
No Tank	0	3532 (139.0)	1153 (45.4)	1739 (68.5)	1860 (4101)	1724 (3800)	0 (0)	86/75
1128 (298)	24/25			2222 (87.5)	2609 (5752)*	2473 (5452)*	483 (19)	
2207 (583)	48/49			2653 (104.4)	2960 (6526)*	2824 (6226)*	914 (36)	
150REOZJF State Code Fuel Tank †								
1196 (316)	24/27	4414 (173.8)	1153 (45.4)	2328 (91.7)	2591 (5712)*	2455 (5412)*	483 (19)	86/75
2252 (595)	48/50			2683 (105.6)	2890 (6361)*	2727 (6012)*	838 (33)	
4403(1163)	96/95	4445 (175.0)	1829 (72.0)	2654 (104.5)	3839 (8463)*	3702 (8163)*	914 (36.0)	
180REOZJG Standard Fuel Tank								
No Tank	0	4094 (161.2)	1338 (52.7)	2038 (80.2)	1928 (4250)	1780 (3925)	0 (0)	85/72
1514 (400)	24/31			2521 (99.3)	2861 (6307)*	2713 (5981)*	483 (19)	
2869 (758)	48/58			2927 (115.2)	3255 (7176)*	3107 (6850)*	889 (35)	
180REOZJG State Code Fuel Tank †								
1556 (416)	24/32	5008 (197.2)	1338 (52.7)	2601 (102.4)	3162 (6971)*	3014 (6646)*	457 (18)	85/72
2896 (765)	48/59			2906 (114.4)	3488 (7690)*	3340 (7363)*	762 (30)	
5742(1517)	96/106	5436 (214.0)	1829 (72.0)	2935 (115.5)	3760 (8289)*	3474 (7659)*	914 (36.0)	
200REOZJF Standard Fuel Tank								
No Tank	0	4094 (161.2)	1338 (52.7)	2025 (79.7)	2508 (5530)	2223 (4900)	0 (0)	87/75
1514 (400)	24/26			2508 (98.7)	3441 (7587)*	3156 (6957)*	483 (19)	
2869 (758)	48/49			2914 (114.7)	3836 (8456)*	3550 (7826)*	889 (35)	
200REOZJF State Code Fuel Tank †								
1575 (416)	24/27	5008 (197.2)	1338 (52.7)	2588 (101.9)	3743 (8251)*	3456 (7621)*	457 (18)	87/75
2896 (765)	48/50			2893 (113.9)	4069 (8970)*	3783 (8340)*	762 (30)	
5742(1517)	96/95	5436 (214.0)	1829 (72.0)	2935 (115.5)	4236 (9339)*	3950 (8709)*	914 (36.0)	

**Note:** Data in table is for reference only, refer to the respective ADV drawings for details.

\* Max. weight includes the generator set (wet) using the largest alternator option, enclosure with acoustic insulation added, silencer, and tank (no fuel).

† State code fuel tank specifications (height and weight) include I-beam option.

‡ Log average sound pressure level of 8 measured positions around the perimeter of the unit at a distance of 7 m (23 ft). Refer to TIB-114 for details.

## Enclosure and Subbase Fuel Tank Specifications (continued)

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load, Nominal/Actual	Enclosure and Subbase Fuel Tank					Fuel Tank Height (or additional skid height with no tank), mm (in.)	Sound Pressure Level at 60 Hz with Full Load, Weather/Sound, dB(A)‡
		Max. Dimensions, mm (in.)			Max. Weight, kg (lb.) *			
		Length	Width	Height	With Steel Enclosure	With Aluminum Enclosure		
230REOZJE Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2654 (5850)	2540 (5600)	260 (10)	87/75
1787 (472)	24/29			2655 (104.5)	3561 (7850)*	3447 (7600)*	762 (30)	
230REOZJE State Code Fuel Tank †								
2101 (555)	24/34	5009 (197.2)	1338 (52.7)	2894 (113.9)	3895 (8587)*	3782 (8337)*	635 (25)	87/75
3573 (944)	48/58	5325 (209.7)		3173 (124.9)	4504 (9930)*	4391 (9680)*	914 (36)	
250REOZJE Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2699 (5950)	2585 (5700)	260 (10)	89/75
1787 (472)	24/26			2655 (104.5)	3606 (7950)*	3493 (7700)*	762 (30)	
250REOZJE State Code Fuel Tank †								
2101 (555)	24/31	5009 (197.2)	1338 (52.7)	2894 (113.9)	3940 (8687)*	3827 (8437)*	635 (25)	89/75
3573 (944)	48/53	5325 (209.7)		3173 (124.9)	4550 (10030)*	4436 (9780)*	914 (36)	
275REOZJE Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2835 (6250)	2722 (6000)	260 (10)	89/75
1787 (472)	24/24			2655 (104.5)	3742 (8250)*	3629 (8000)*	762 (30)	
275REOZJE State Code Fuel Tank †								
2101 (555)	24/28	5009 (197.2)	1338 (52.7)	2894 (113.9)	4076 (8987)*	3963 (8737)*	635 (25)	89/75
3573 (944)	48/48	5325 (209.7)		3173 (124.9)	4686 (10330)*	4572 (10080)*	914 (36)	
300REOZJ Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2835 (6250)	2722 (6000)	260 (10)	89/75
2067 (546)	24/24			2731 (107.5)	3770 (8311)*	3656 (8061)*	838 (33)	
300REOZJ State Code Fuel Tank †								
2101 (555)	24/25	5009 (197.2)	1338 (52.7)	2894 (113.9)	4076 (8987)*	3963 (8737)*	635 (25)	89/75
4065(1074)	48/48	5588 (220.0)		3173 (124.9)	4644 (10238)*	4530 (9988)*	914 (36)	

**Note:** Data in table is for reference only, refer to the respective ADV drawings for details.

\* Max. weight includes the generator set (wet) using the largest alternator option, enclosure with acoustic insulation added, silencer, and tank (no fuel).

† State code fuel tank specifications (height and weight) include I-beam option.

‡ Log average sound pressure level of 8 measured positions around the perimeter of the unit at a distance of 7 m (23 ft). Refer to T1B-114 for details.



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# Grit King® for Small Plants

Precast System Optimized for Plants up to 2.4 MGD Peak

Hydro<sup>®</sup>  
International

**Advanced grit management priced for smaller plants unwilling to sacrifice performance.**

Hydro International now offers small wastewater treatment plants an accessible option to provide 85-95% removal of all grit entering the plant for peak flows up to 2.4 Mgal/d (105 L/s) with 106 micron (µm) performance, or peak flows up to 5 Mgal/d (220 L/s) with 212 µm performance.

Advanced Grit Management® systems, have often been a luxury item for small plants – until now. Based on proven real-world performance in grit removal over more than 30 years, the Grit King® hydrodynamic vortex separation system is now available as a precast system designed specifically for small plants.

The precast tank is simply placed on an appropriate base and a grout cone is formed in the bottom. The internal components, made of synthetic materials and stainless steel, are installed with inlet and outlet connections sealed to the concrete chamber; a dry pit grit pump, Decanter grit dewatering box, and control panel complete this Advanced Grit Management® system.

## Benefits

- Economical to install, own, and operate
- A complete Advanced Grit Management® system including collection and dewatering
- No moving parts in the separator, the grit pump is the only mechanical component
- Compact design with minimal headloss

## Applications

- New small municipal and industrial wastewater treatment plants
- Small treatment plant retrofits and upgrades
- Sediment removal pre-treatment for potable water

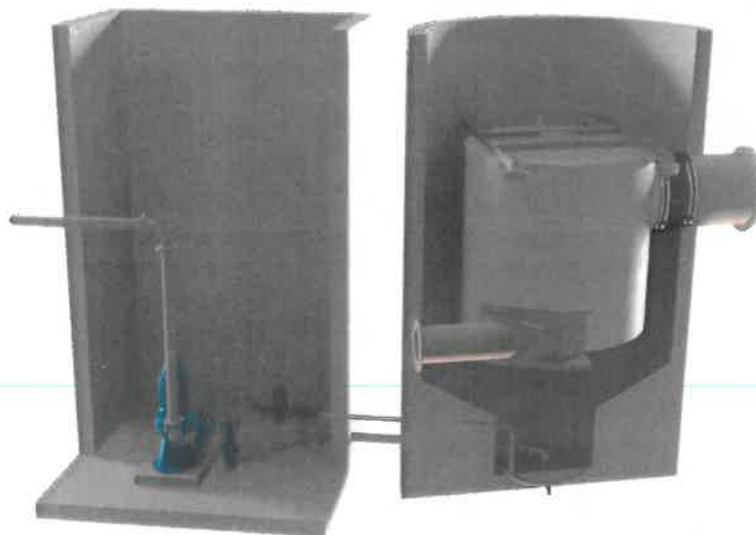
## How it Works

The Grit King® is an advanced hydrodynamic separator that augments gravitational forces to effectively separate grit from water with no moving internal components. Flow is introduced into the Grit King® via a tangentially positioned inlet causing a rotational flow path around the dip plate. The flow spirals down the wall of the chamber as solids settle out by gravitational forces and forces created by the rotating flow. The grit collects in the grit sump at the bottom of the unit as the center cone directs flow away from the base, up and around the center shaft into the inside of the dip plate and out the effluent pipe.

The upward flow rotates at a slower velocity than the outer downward flow. The resulting “shear” zone scrubs out the finer particles. The concentrated grit underflow is pumped to a grit dewatering dumpster.



**Decanter Dewatering System Delivers Dry Grit Output**



**Installed Grit King® System [right] and Pump Tank (supplied by others) [left]**



## Grit King® for Smaller Plants Configurations

The synthetic internal components and stainless steel support frame are supplied with a precast concrete tank. The precast concrete structure is simply placed on an appropriate base, a grout cone is formed in the bottom, components are installed and sealed connections are made to the influent and effluent piping.

The precast Grit King® is typically supplied with a dry pit grit pump, controls and a Decanter non-mechanical dewatering bin. Optional equipment includes a precast concrete tank for the pump, tank covers, and alternate pump and dewatering options.

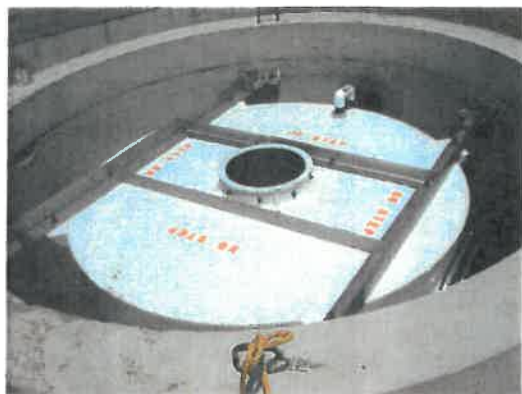
## Grit King® for Smaller Plants Performance

The Grit King® PC can be designed for 95% removal of all grit 106, 150, or 212 µm and larger. Most Advanced Grit Management systems are designed for 95% removal of 106 µm and larger.

## Capacity

Unit Size	4'	6'	8'	10'
Design Cut Point	Peak Flow, Mgal/d			
106 µm	≤ 0.29	≤ 0.71	≤ 1.33	≤ 2.19
150 µm	≤ 0.41	≤ 1.49	≤ 1.88	≤ 3.07
212 µm	≤ 0.61	≤ 1.57	≤ 2.81	≤ 4.58

Size	1.2 m	1.8 m	2.4 m	3.1 m
Design Cut Point	Peak Flow, L/s			
106 µm	≤ 8.8	≤ 30.0	≤ 60.9	≤ 106.9
150 µm	≤ 15.8	≤ 43.8	≤ 89.8	≤ 156.9
212 µm	≤ 25.0	≤ 68.8	≤ 141.5	≤ 247.1

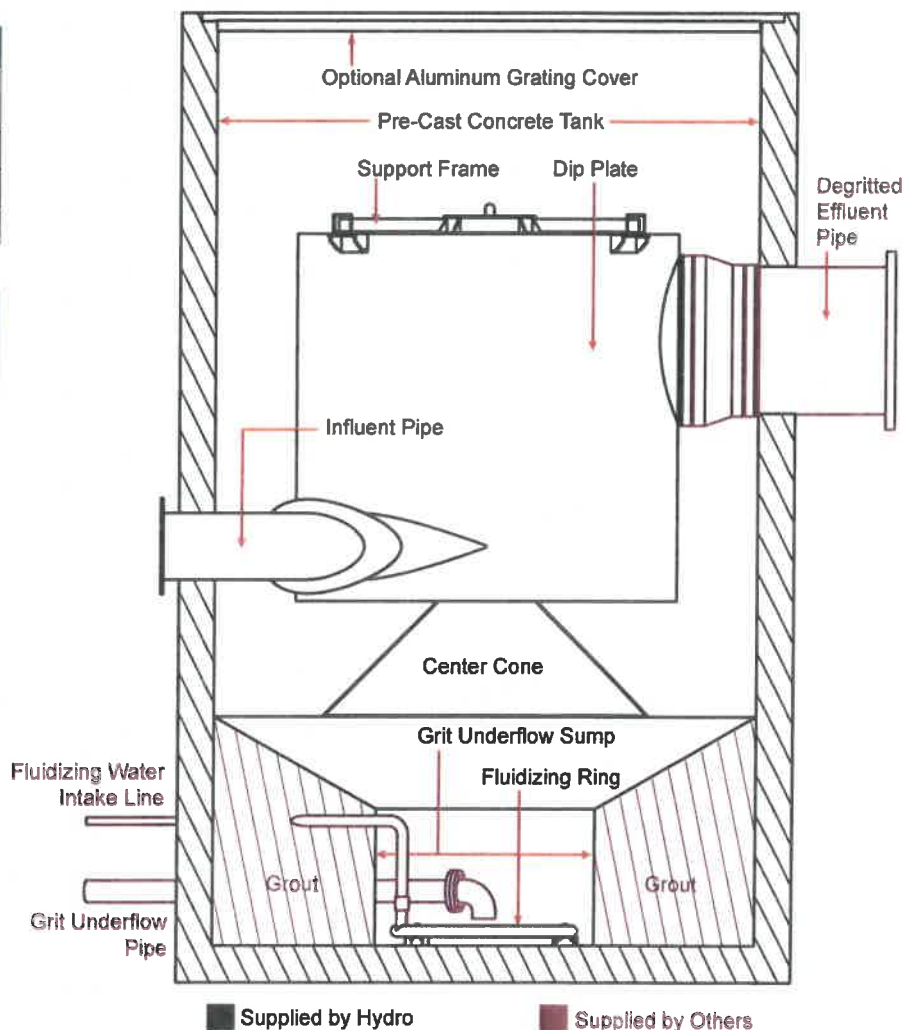


## Design Notes

- Complete Advanced Grit Management® system, including precast tank with internal grit separation components, pump, dewatering unit and controls
- Internal flow structuring components create a long flow path, aiding settlement and maximizing grit capture
- All-hydraulic design with no moving parts ensures long product life; the grit pump is the only mechanical component in the system

## Reduce costs with pre-built components

The Grit King® arrives on-site already configured in the tank, and just needs the grout poured for the grit sump. This allows you to rapidly get the system up and running with minimal installation time and costs.



**Precast Grit King® Components**

## Learn more

To learn more about how the Grit King® in a precast system can cost-effectively improve your plant, visit [hydro-int.com](http://hydro-int.com), or contact us:

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**THE ORBAL<sup>®</sup> SYSTEM FOR  
BIOLOGICAL TREATMENT**  
**SIMULTANEOUS NITRIFICATION-DENITRIFICATION**

**Envirex<sup>®</sup>**  
an EVOQUA brand





## THE ORBAL SYSTEM

The Orbal system was first introduced in 1968 and there are now over 800 installations. It is an important part of the Envirex® product line of Evoqua. The Orbal® system is a reliable solution for enhanced nutrient removal, stormflow and energy management. It provides process flexibility to meet today's stringent effluent requirements.

## **SERIES OPERATION ENABLES SIMULTANEOUS NITRIFICATION- DENITRIFICATION (SND)**

The Orbal® system from Evoqua is an activated sludge process designed to address the nutrient and Stormflow issues of today. The Orbal system has been on the leading edge of implementing SND plant designs for over 50 years. With over 800 installations it has been proven to deliver results.

### **NUTRIENT REMOVAL**

The simultaneous nitrification-denitrification (SND) process is the backbone of the design. The Orbal system incorporates a unique concentric loop configuration that creates dedicated zones for specific treatment purposes. These treatment zones operate in series which is essential to the SND process. The volume split of the concentric loop configuration naturally applies the correct volume to oxygen input ratio required in the design of a SND plant.

The concentric loops also save on concrete and construction costs of the aerobic basin volume by using common wall construction. The SND design allows for the elimination of a dedicated anoxic zone, which saves further on construction costs.

### **STORMFLOW**

Operating tanks in series allows for diverting the Stormflow downstream of the first reactor, preventing clarifier washout of biomass and storing it in the first reactor of the system. This mode of operation has been proven effective in treating greater than seven times peak flow.

### **SYSTEM DESIGN**

The concentric loop configuration of a typical Orbal system operates in series. The unique design has channels varying in size with the outer channel having 50% of the volume. Influent and return activated sludge enter the outer channel which is operated under an oxygen deficit (anoxic) condition to promote simultaneous nitrification-denitrification.

By design, the aeration discs placed in the outer channel supply approximately 50% of the system's total oxygen requirement. The design ensures a constant oxygen deficit condition throughout this channel with the DO set-point below zero. The oxygen deficit environment of the outer channel delivers an overall denitrification performance rate of 80% without internal recycle. The majority of the system's nitrification takes place in the outer channel where the anoxic condition also drives denitrification.

The mixed liquor then flows hydraulically to the middle channel where DO conditions swing depending on daily load variation. Finally the mixed liquor flows to the inner channel where the DO is designed to operate at 2.0 mg/l. Final nitrification is completed in the inner channel (or oxygenation zone) in surplus oxygen conditions.

The center island of the Orbal system houses the effluent structure that maintains the water level throughout the channels of the basin. This structure can also serve the purpose of a clarifier splitter box.

### **KEY BENEFITS OF ORBAL SYSTEMS**

#### Biological Treatment

SND in the same zone results in 80% denitrification without the need for an internal recycle pump.

#### Eliminate Structures

Allows for elimination of a dedicated anoxic zone typically used in biological nutrient removal processes. This design saves the associated treatment footprint, concrete cost, mechanical mixers and operational energy cost for the mechanical mixer in the anoxic zone.

#### Energy Efficient

Operating a majority of the system volume at a strong oxygen deficit allows for much higher oxygen transfer efficiency in comparison with operating a system with a 2mg/l DO or greater throughout the process.

#### Process Adaptability/Flexibility

Adaptable to achieve lower TN or TP as regulations change. Typically, only minor mechanical or setpoint changes are required.

#### Stormflow Treatment Operation

In Stormflow treatment operation, solids are stored in the outer channels, reducing solids loading on clarifiers and preventing any loss of biological treatment during the storm event.

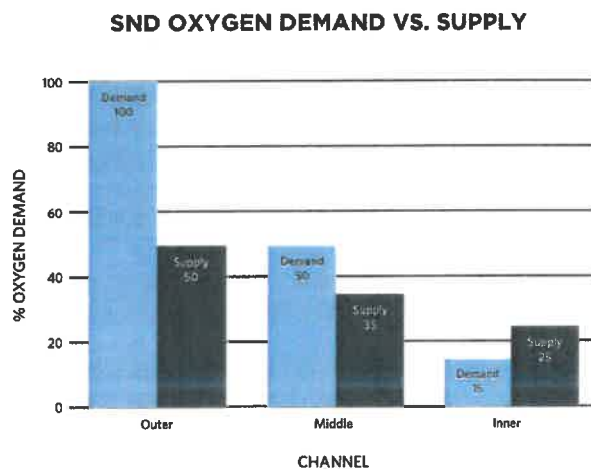
#### Process Knowledge

Evoqua process engineers have been designing SND biological treatment systems for more than 50 years meeting the most stringent effluent quality requirements.



## ORBAL® SYSTEM REQUIRES LESS OXYGEN

Oxygen is introduced at multiple points in each channel resulting in low intensity oxygen delivery and higher oxygen transfer efficiency. An important part of the process is operating the outer channel at an oxygen deficit. This deficit creates an environment where specific nitrifying bacteria thrive. The chart below shows how the oxygen supply does not match the demand in the first two channels which corresponds to a low DO. In the inner channel the supply is greater than the demand and results in a positive DO.



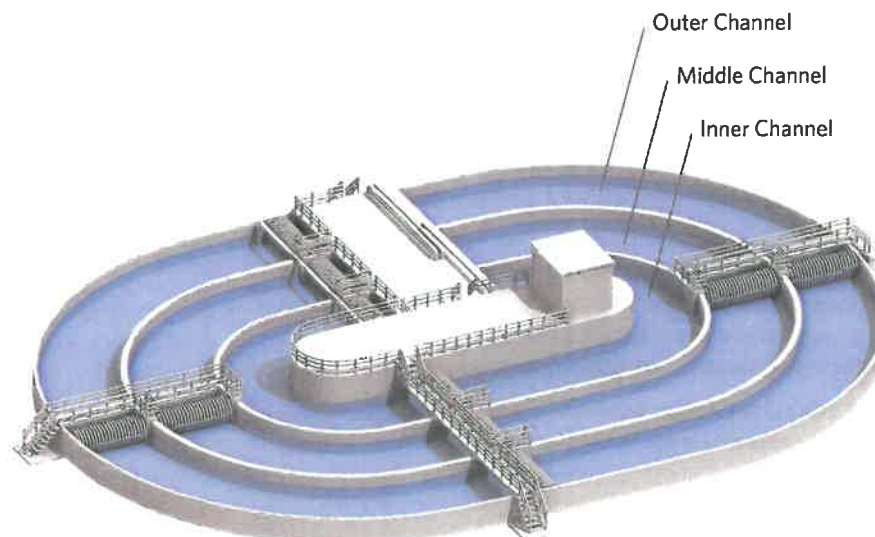
## PROCESS FLEXIBILITY

The Orbal system can be easily modified to meet a large variation of effluent limits. The chart below explains the typical configurations of the Orbal system. Typically only a simple process setpoint or mechanical change is needed to meet more stringent nitrogen or phosphorus effluent limits.

## EFFLUENT QUALITY

Typical effluent of an Orbal system provides BOD < 10 mg/l and NH<sub>3</sub>-N < 1 mg/l. Effluent quality can be further improved with the configuration of the Orbal system outlined below.

CONFIGURATION	EFFLUENT (MG/L)
2-channel Orbal	60% TN removal TN<15
3-channel Orbal	80% TN removal TN<10
3-channel Orbal w/ internal recycle	90% TN removal TN<5 TP<1
3-channel Orbal w/ internal recycle & Anaerobic zone	90% TN removal TN<5 TP<1
3-channel Orbal w/ internal recycle, Anaerobic zone & Post Anoxic zone	90% TN removal TN<5 TP<0.5



Orbal system including its unique Concentric Loop design

## WHAT DOES THE SND SYSTEM PROVIDE?

SND provides a highly efficient aeration process. It is efficient in several parameters.

- **Total tank volume.** The Orbal system counts the oxygen deficient zone as part of the total aerobic SRT. Conventional systems with a separate anoxic zone will not account for the anoxic zone as aerobic SRT and require additional tank volume. The Orbal system accounts for this volume because it is truly being aerated. Approximately 80% of the air is applied in such conditions.
- **Energy.** The SND in the Orbal system typically results in a 35% reduction in power over a conventional system due to oxygen recovery from the inherent denitrification process.
- **Alkalinity.** Approximately 50% of alkalinity consumed by the nitrification process is recovered. This helps control the pH level in the system and eliminates the need to add alkalinity for typical municipal wastewater plants.

## DESIGNS FOR TN LIMIT

Orbal® plants designed for TN removal will usually split the oxygen delivery equally across all three channels. Adding an internal recycle will increase denitrification from 80% to above 90%. Additional considerations and design features are offered to plants where carbon to nitrogen ratios is reduced due to primary clarification or industrial waste factors. For enhanced TN removal, an internal recycle pump is introduced to achieve effluent total nitrogen levels less than 5.0mg/l.

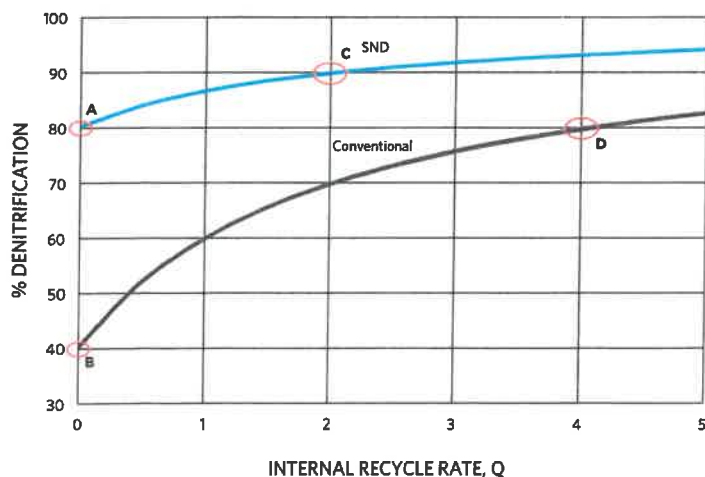
## DESIGNS FOR TP LIMIT

Orbal plants designed for biological phosphorus removal are set for a low oxygen delivery in the outer channel. Typically, 20% is applied to the outer channel with the remaining oxygen demand being satisfied in remaining channels. Envirex® Disc Aerators provide sufficient mixing and oxygen delivery in the outer channel without need for supplemental mixing.

## ORBAL SYSTEM INTERNAL RECYCLE PUMP DESIGN

Conventional plant designs rely entirely on an internal recycle pump for denitrification. The recycle pump for the Orbal system is a polishing step as SND takes place in the basin.

## RECYCLE PUMP ADVANTAGE



The Orbal system process achieves 80% denitrification without internal recycle (circle A) where a conventional plant will have 40-50% (circle B). The internal recycle pump is a polishing step for lower nitrogen limits. Adding a 2Q internal recycle will increase the denitrification to 90% (circle C) in the Orbal system, where as a 4Q recycle is typically used to achieve 80% denitrification (circle D) in a conventional plant.

The SND biological treatment system eliminates the need for a nitrate recycle pump compared to a conventional activated sludge process saving capital and energy costs.

### STORMFLOW TREATMENT OPERATING MODE

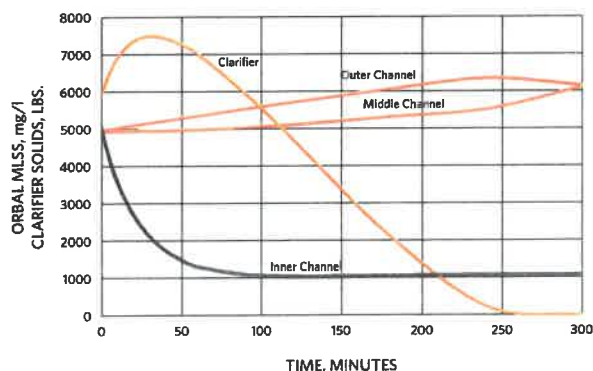
When the Orbal® system operates in Stormflow treatment mode, the influent flow is directed from the outer channel to the inner channels for treatment. The return activated sludge from the clarifier continues to be pumped to the outer channel.

The Stormflow treatment mode represents an adjustment in solids inventory to the outer channel of the Orbal system to prevent solids washout during peak hydraulic events.

When flows return to normal, the influent flow is simply returned to the outer channel and treatment proceeds routinely.

This operating mode eliminates the need for an equalization basin. The conversion of normal to Stormflow mode can be manually controlled or automatic through the SmartBNR™ control system.

### STORMFLOW TREATMENT MODE ADVANTAGE



The chart above shows the activities of the Orbal system and clarifier biological solids during a Stormflow event. Influent is diverted to the inner channel. The MLSS for the inner channel drops as the dilute influent displaces a portion of the solids to the clarifier (blue line). The clarifier solids will initially increase, but decrease (yellow line) as the RAS pumps transfer the solids to the outer channel. This action will increase the MLSS in the outer and middle channel thus storing solids (red lines).

Activated sludge treatment will take place in the inner channel as there are biological solids and oxygen in contact with the influent. The RAS contacts the influent through the displacement of liquid in the outer and middle channel and flowing into the inner channel.

This operating mode eliminates the need for an equalization basin. In many applications the use of this mode can also reduce the size and/or number of clarifiers.

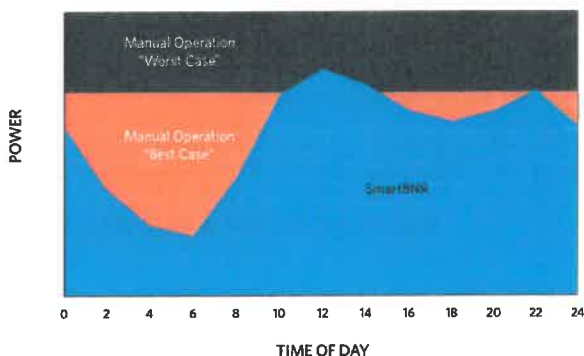
### SMARTBNR CONTROLS

The biological aeration system typically consumes the most power in a wastewater treatment plant. Evoqua process engineers work closely with electrical engineers to optimize power consumption and process effluent quality for the Orbal system. The SmartBNR controls utilize a touch screen operator interface with ORP and DO analyzers to continuously monitor and adjust the aerator speed based upon the actual wastewater conditions and characteristics of the disc. The controls also adjust for long-term variations or sudden surges in demand by turning on/off individual assemblies.

To meet strict ENR limits, the SmartBNR control system optimizes TN and TP levels through ammonia probes and phosphate analyzers. The control system has standard control options for Stormflow treatment mode of operation, nitrate recycle pumps, RAS pumps, SRT control, and chemical feed.

The SmartBNR control system from Evoqua provides remote access to the system control screens for process analysis and adjustments.

### AERATION POWER WITH TYPICAL DIURNAL FLOW PATTERN



SmartBNR control systems save operating costs by only providing the aeration power required to match the diurnal load throughout the day.

### THE OX™ DISC AERATOR ENABLES SND

The mechanical backbone of the Orbal® system is the unique and \*patented aeration disc. It delivers a high oxygen transfer rate and unmatched mixing efficiency.



The non-metallic OX™ Disc Aerator provides a longer, more cost-effective life when compared to galvanized or painted carbon steel brush rotor designs.

Aeration and mixing are provided by nodules on the face of the disc, with oxygen delivery and energy consumption varying with changes in speed and immersion depth.

The disc is split into two half sections and can be directly attached to the aerator shaft at any location. The number of discs allotted for each channel is a function of the oxygen delivery requirements. In a typical 3-channel Orbal system, the outer disc aerator assembly spans the outer channel. The inner aerator assembly spans the inner and middle channel.

### REDUCED SPEED IMPROVES MIXING EFFICIENCY

Mixing efficiency, defined as the number of gallons mixed per 1 hp to maintain a 1 fps channel velocity, is an extremely important feature of the Orbal system. The disc is designed so that mixing efficiency improves as speed is reduced. This characteristic is beneficial to the Orbal basin as it allows the process to keep a DO deficit in the outer channel during underloaded conditions, while still keeping a velocity sufficient to keep solids in suspension. Independent mixing devices are not needed to maintain anoxic conditions in the outer channel.

The mixing efficiency of the aeration discs in an Orbal system basin is unmatched by any other aerator device. As an example, an outer channel with 1 million gallons of volume requires only 10 hp of disc aerators to maintain a 1 fps channel velocity. The high mixing efficiency of Envirex aeration discs ensures unparalleled biological process performance under all load conditions.



Evoqua's OX™ Disc Aerators provide superior aeration and mixing without creating unwanted aerosols and sprays.



## FLWSHEET SOLUTIONS: TECHNOLOGY COMBINATIONS CREATE GREATER VALUE

Evoqua draws on its leading biological wastewater portfolio and applications experts to support projects where multiple technologies can be combined into a high performing cost effective solution. The Orbal® system, for example, can be combined with:

- Tow-Bro® high performance clarifiers to achieve stringent nutrient levels and handle peak flow rates
- A Forty-X™ Disc Filter for low TP applications
- The innovative CoMag® Magnetite Ballasted Treatment System to produce near MBR quality effluent in a small footprint
- TIW® Control System Solutions that deliver seamless controls across technologies without costly redundancy

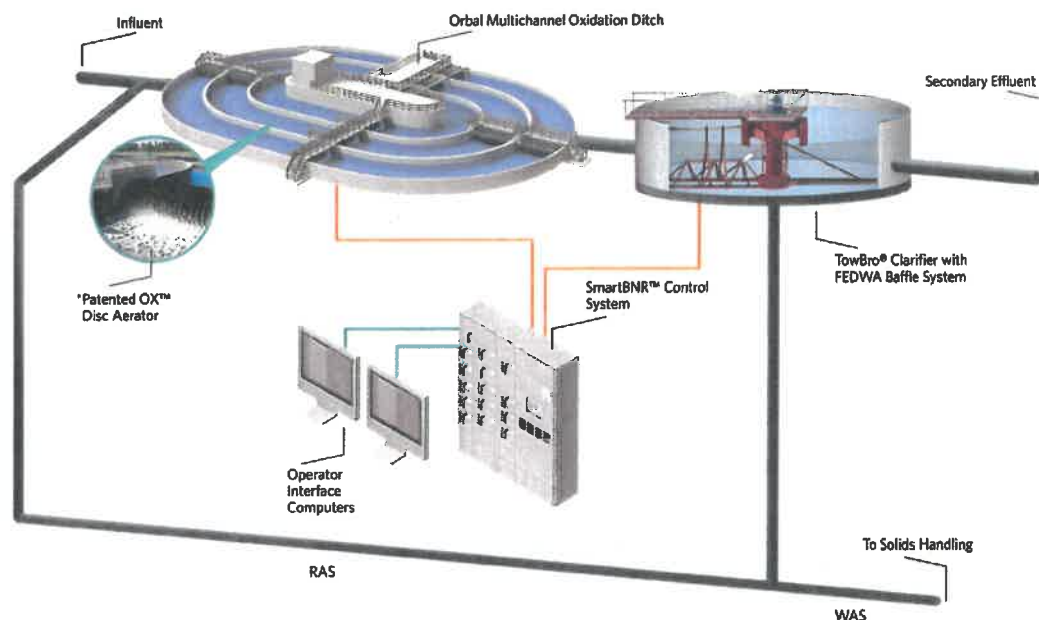
Evoqua Flowsheet Solutions are supported with a dedicated single technical point of contact who assures coordinated, timely, and accurate project execution, along with a comprehensive upfront evaluation of alternatives.

### Ready to put the technology, experience, and expertise of Evoqua to work?

Learn more how the Orbal system creates a simultaneous nitrification - denitrification environment and addresses nutrient and Stormflow issues.

Connect with an expert at [www.evoqua.com/orbal](http://www.evoqua.com/orbal).

Flowsheet Solutions from Evoqua provide expertise and project support across technologies.



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[www.evoqua.com/orbal](http://www.evoqua.com/orbal)

\*patented in some countries

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BC-ORBAL-BR-0220



## OVIVO SEL™ SUBMERGED EFFLUENT LAUNDER

ONE COMPONENT SERVING AS FIVE FUNCTIONS

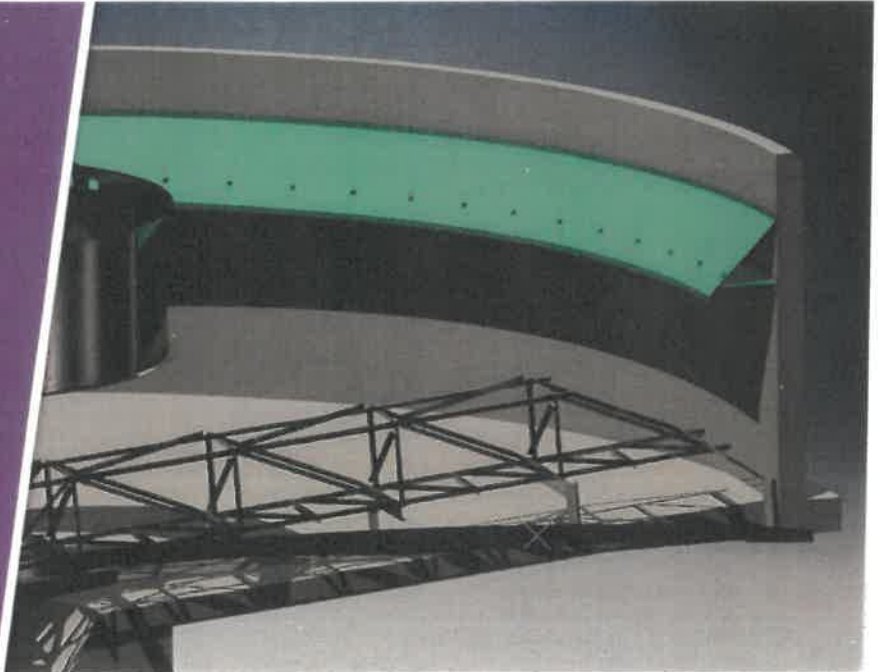
Effluent Launder

Weir

Scum Baffle

Density Current Baffle

Launder Cover



### FEATURES AND BENEFITS

**Designs for new and retrofit projects**

**Eliminates need for launder covers or algae cleaning systems, weir, scum baffle and density current baffle**

**Significantly reduces installation time and cost**

- Eliminates the need to form concrete effluent launders on new tanks
- Self-supporting and requires no external supports

**Reduce maintenance cost**

- Eliminates need to maintain, adjust and or replace algae brush/spray cleaning systems

**Safety: Eliminates need for operator to manually clean effluent launders and its associated safety issues**

**Minimizes algae growth and downstream algae fouling problems**

**More forgiving system**

- More surface area for settling
- Full surface area skimming
- All components are underwater
  - Submerged orifices prevent floatables from exiting into the effluent
  - Prevents unequal flow distribution during high winds
  - Equal or better effluent quality
  - Prevents potential launder cover projectile during high winds
  - Minimizes UV degradation





## SUBMERGED EFFLUENT LAUNDER DESIGN

### EVEN FLOW DISTRIBUTION

In order to provide an even flow distribution for the entire tank perimeter, OVIVO's proprietary sizing program takes into account the following design criteria:

1. Orifice diameter, depth, and spacing
2. Total number of orifices
3. Cross-sectional area of launder
4. Maximum launder velocity
5. Maximum orifice velocity
6. Head loss
7. Flowrate at each orifice

The CFD analysis results (below) of a traditional overflow weir and the OVIVO SEL system illustrate that the SEL system distributes effluent flow as evenly as the traditional inboard launder.

Sludge blanket samples were taken at 0, 90, 180, and 270 degrees from the effluent drop out box at OVIVO's SEL Clarifier installation at Sykes Creek Regional WWTP illustrated on Page 3. The sludge blanket depths were identical, supporting the CFD analysis results illustrating equal flow distribution.

In addition, the submerged orifices of the OVIVO SEL Clarifier prevents unequal flow distribution during high wind events compared to a traditional overflow weir

### LOWER MAGNITUDE VELOCITY VECTORS

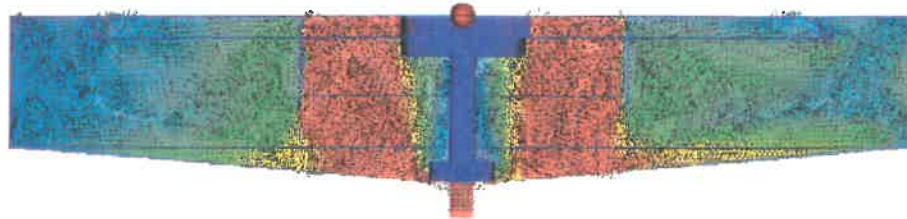
CFD analysis illustrates that the velocity vector magnitudes are lower for the SEL system compared to the traditional inboard launder. The velocity vector magnitude scale ranges from blue (lowest) to red (highest) with green and yellow representing medium velocities.

The SEL CFD analysis has more blue velocity vectors and almost no green velocity vectors compared to the traditional inboard launder CFD analysis. These lower velocity vectors provide a more quiescent environment to enhance settling.

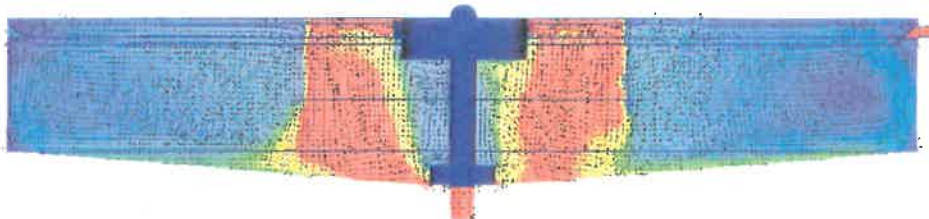
At different flow conditions, effluent samples were collected by Sykes Creek Regional WWTP staff from the OVIVO SEL Clarifier and the existing clarifier with the traditional launder system. Total suspended solids were measured by the Sykes Creek laboratory staff. The effluent TSS was consistently lower for the OVIVO SEL Clarifier.

## CFD ANALYSIS AND RESULTS

Traditional Inboard Launder



Submerged Effluent Launder



Lower  
Velocities



Higher  
Velocities



## CASE STUDY

### SYKES CREEK REGIONAL WWTP INSTALLATION

OVIVO's first SEL installation is located at Sykes Creek Regional WWTP in Brevard County, FL. There were four (4) 74' diameter clarifiers with a traditional internal FRP launder, weir and scum baffle system. One (1) clarifier was retrofitted with the submerged effluent launder. The SEL system is in operation in Figure 1. The clarifier is being filled up prior to start-up of the SEL system in Figure 2. The OVIVO SEL Clarifier and the existing clarifier were stress tested at peak hourly flow rate producing effluent total suspended solids of 1.7 mg/L and 20.3 mg/L, respectively, demonstrating OVIVO's SEL more forgiving system. Since start-up the OVIVO SEL Clarifier control system at Sykes Creek has maintained a liquid level within plus or minus 0.25 inches of the liquid level set point.

The OVIVO SEL Clarifier shown in Figure 1 features more surface area for settling, full surface area skimming to improve scum removal efficiency and prevents scum from escaping over a traditional weir.

OVIVO's patent pending SELBOX SWEEPER™, illustrated in Figure 3, has the following features and corresponding benefits listed in Table 1. Traditional scum box designs with internal piping and supports would require a sweeping system with counterweights, springs and/or moving parts under water that will require frequent maintenance and can snag stationary members thus damaging rake arms, cage and drive. The SELBOX SWEEPER prevents solids accumulation on the upper panel, mitigates algae growth and promotes 2nd phase solids settling contributing to the lower effluent TSS experienced at the Sykes Creek installation.

**TABLE 1. SELBOX SWEEPER FEATURES AND BENEFITS**

Features	Benefits
Internal Peripheral or External Vertical Discharge Box	Eliminates obstruction for the rotating Sweeper attached to the skimmer support arm  Operator is able to view obstructions down the vertical discharge pipe without bends and facilitates removal of obstructions
Low Profile	Enables OVIVO to retrofit existing launder systems with height constraints
Cantilevered	Eliminates need for internal supports that would obstruct the SEL Sweeper
Sweeper	Prevents solids accumulation on the upper panel, mitigates algae growth and promotes 2nd phase solids settling to reduce effluent TSS
Adjustability / Durability	Easy to install, no moving parts, multi-layered neoprene/spring stainless



Figure 1



Figure 2

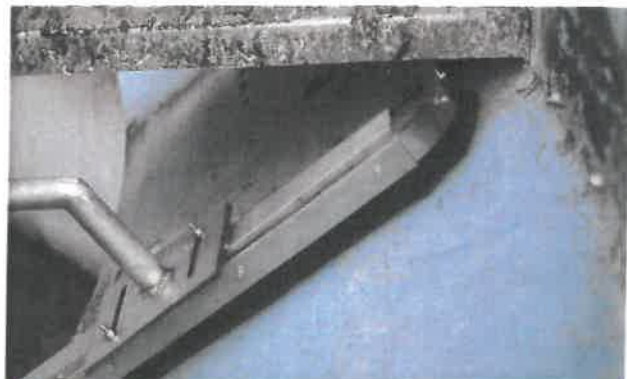


Figure 3

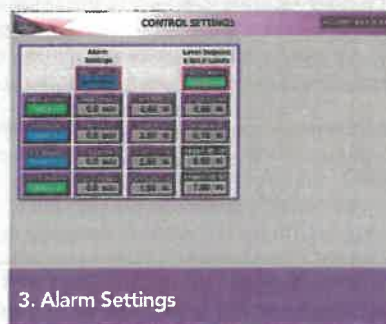
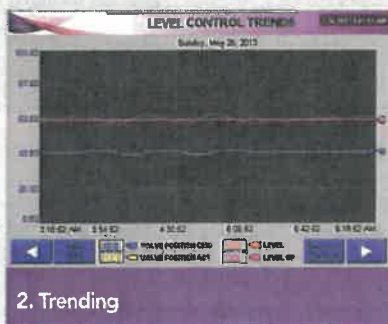


## PROCESS CONTROL SYSTEM

Due to the differential head created by the submerged launder, a control system is necessary to actively control the liquid level in the clarifier. It consists of two level transmitters for redundancy, a control panel with PLC/HMI, and final control element in the form of a weir or gate with an automatic actuator. Based on the liquid level measurement, the PLC moves the final control element to achieve the desired liquid level. Failsafe options are available.



## HMI SCREENS



### 1. Level control Loop

A visual representation is provided to show the current liquid level elevation. Alarm elevations are also shown on the level indicator.

### 2. Trending

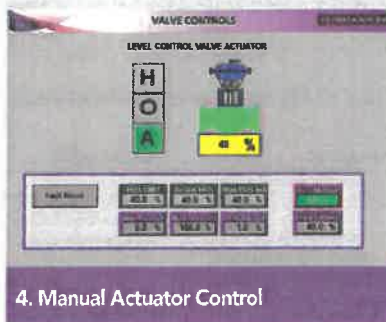
Tracks level set point, measured level, command actuator position and actuator position feedback. Values are logged and retained even after power outage.

### 3. Alarming

Four customizable alarms available (high (H), high high (HH), low (L), low low (LL)). Alarms can be provided with dry contacts for interface with other systems or to signal beacons, horns or other alarms.

### 4. Manual Actuator Control

Two forms of manual control are: 1) Actuator position value can be manually entered into the HMI, 2) Operator can use the open/close switch to manually move the actuator, at which point level control will resume automatically, 3) Actuator handwheel



## THE OVIVO SOLUTION

Minimize algae growth and eliminate launder covers, brush or spray algae control systems, weirs, scum baffles and density current baffles as well as the need for operators to manually clean effluent launders by installing an OVIVO SEL at reduced total installed costs.

## CONTACT

1-855-GO-OVIVO ☎  
info@ovivowater.com ✉  
www.ovivowater.com 🌐



# Heliflow 406 PD Blower

## Technical Specs

- Max Pressure PSI: 16
- Max Vacuum inHg: 16
- Connection: 3" NPT
- Lubrication: Dual Splash Lube
- Seal Type: Pistion Ring Air and Oil Seals

## Main Features

- Solid helical tri-lobe rotors & unique triangular tuned ports reduces pulsations by 4-7 dBA over similar sized straight-lobe blowers for quieter operation
- Reduced Pulsations for Lower Noise and Quieter Operation
- Large diameter shafts and oversized bearings provide superior overhung load capacity and reliability
- Helical alloy timing gears provide quiet and smooth mechanical operation at all speeds
- Advanced piston ring air and oil seals provide leak-free operation
- Dual splash lubrication for reduced maintenance intervals and superior durability
- Single piece cylinder with large external fins for heat dissipation and structural integrity
- Available with mechanical seals for gas applications
- Manufactured under rigid ISO 9001 quality standards and tested to meet strict performance requirements

## HeliFlow Helical Tri-Lobe PD Blowers

- Pressure up to 18 psig
- Vacuum up to 17 inHg
- Flows up to 4,500 cfm



**Gardner  
Denver**

AUTHORIZED DISTRIBUTOR





**MUNICIPAL AND INDUSTRIAL  
DEWATERING APPLICATIONS**

# **ROTARY PRESS**

## **OPTIMUM-CV**





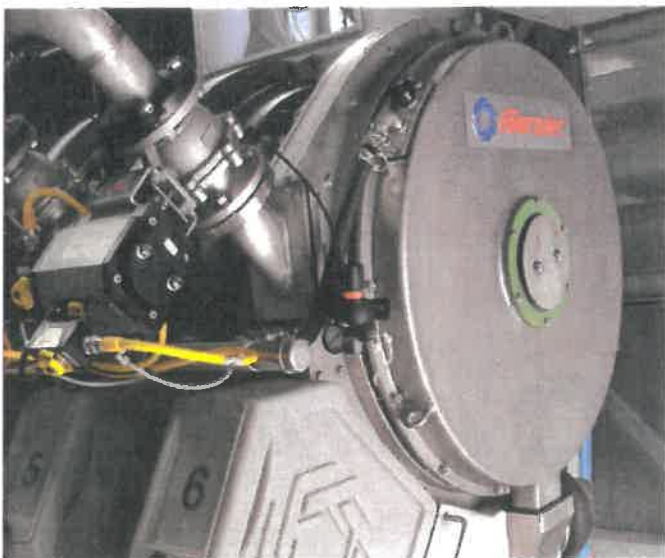
**Fournier Industries Inc. has specialized in mechanical equipment manufacturing since 1960. The company's technical abilities and expertise involve product design, lab and pilot testing, commissioning and training.**

## ROTARY PRESS TECHNOLOGY

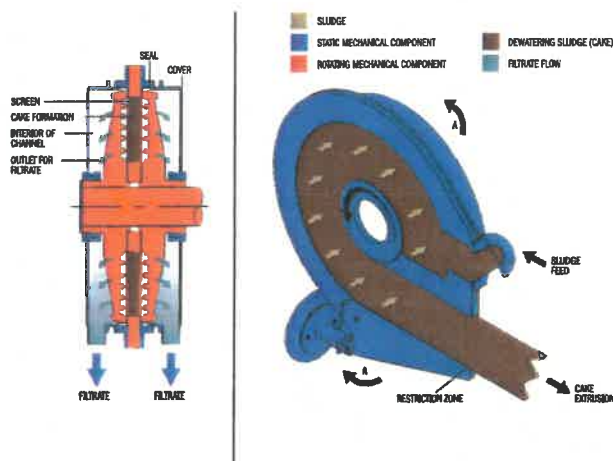
Fournier Industries Rotary Press technology is at the forefront of municipal and industrial sludge dewatering, the result of continuous improvement and R&D.

Due to its reliability and simplicity, the Fournier Rotary Press requires minimal supervision. It is the only dewatering technology that is safe for stand-alone automatic operation and can be monitored and operated by remote control.

The benefits derived from using the Rotary Press have been well documented and result in lower operating costs for the customer through its high performance, easy operation, reduced polymer usage, low power consumption and low maintenance.



## Principle of operation



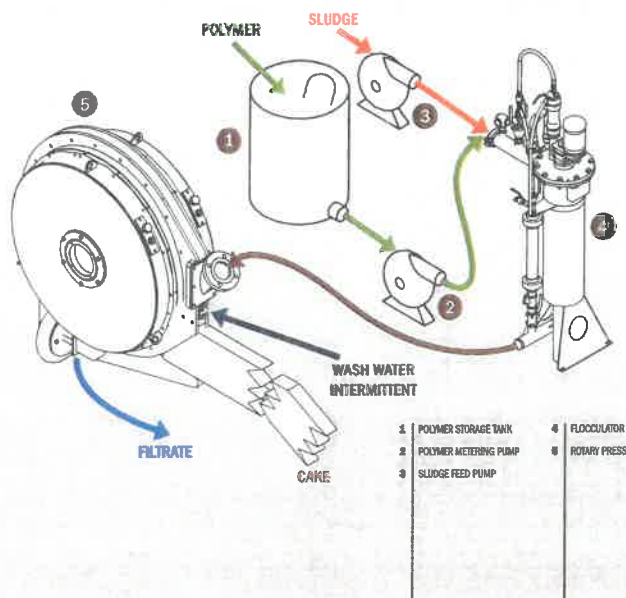
## HOW IT WORKS...

The principle of operation is simple. Sludge is fed at low pressure into the channel and rotates between two parallel revolving stainless steel chrome plated filtering elements.

As free water passes through the screens, the sludge continues to dewater as it travels around the channel. The flocculated sludge builds up solids until enough pressure is generated against the outlet restricted arm.

The frictional force of the slow-moving filtering elements, coupled with controlled outlet restriction, generates enough back pressure to dewater the remaining solids, resulting in the extrusion of a very dry cake.

## Process schematic





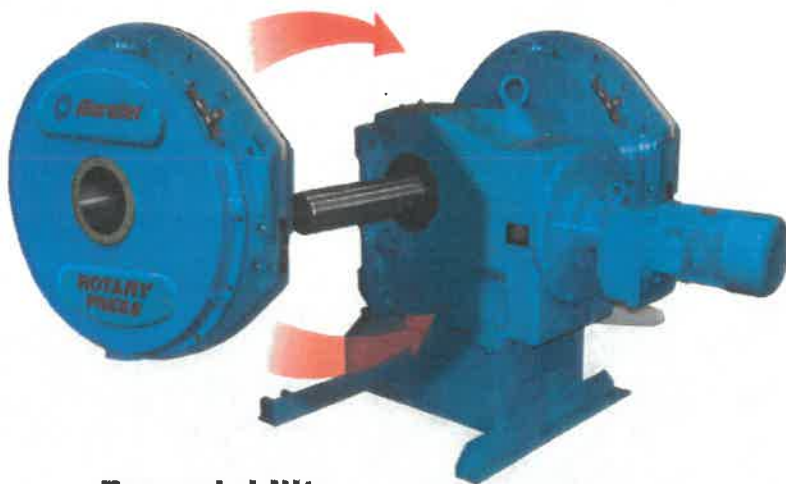
# THE ROTARY PRESS CV-OPTIMUM

The Fournier Rotary Press, CV-optimum is the latest development in dewatering technology.

Winner of the 2002 WEF Innovative Technology Award, this Canadian invention has undergone several upgrades over the years.

A single-width channel is able to dewater all varieties of sludge, allowing a single press to be used anywhere, without any physical modification.

To ensure that our customers always get the parts they need quickly & affordably, Fournier Industries maintains a large inventory of spare parts.

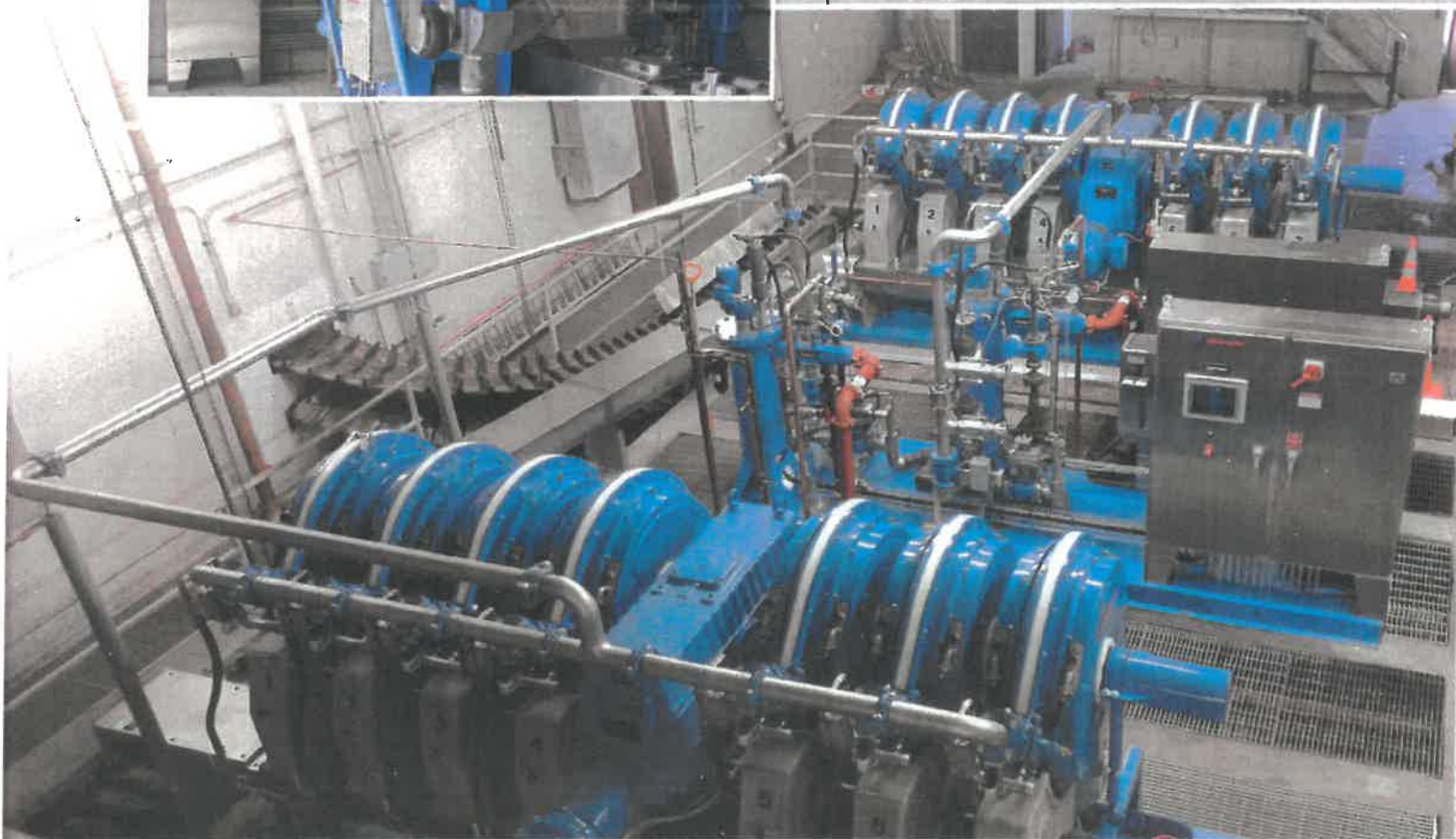


## Expandability

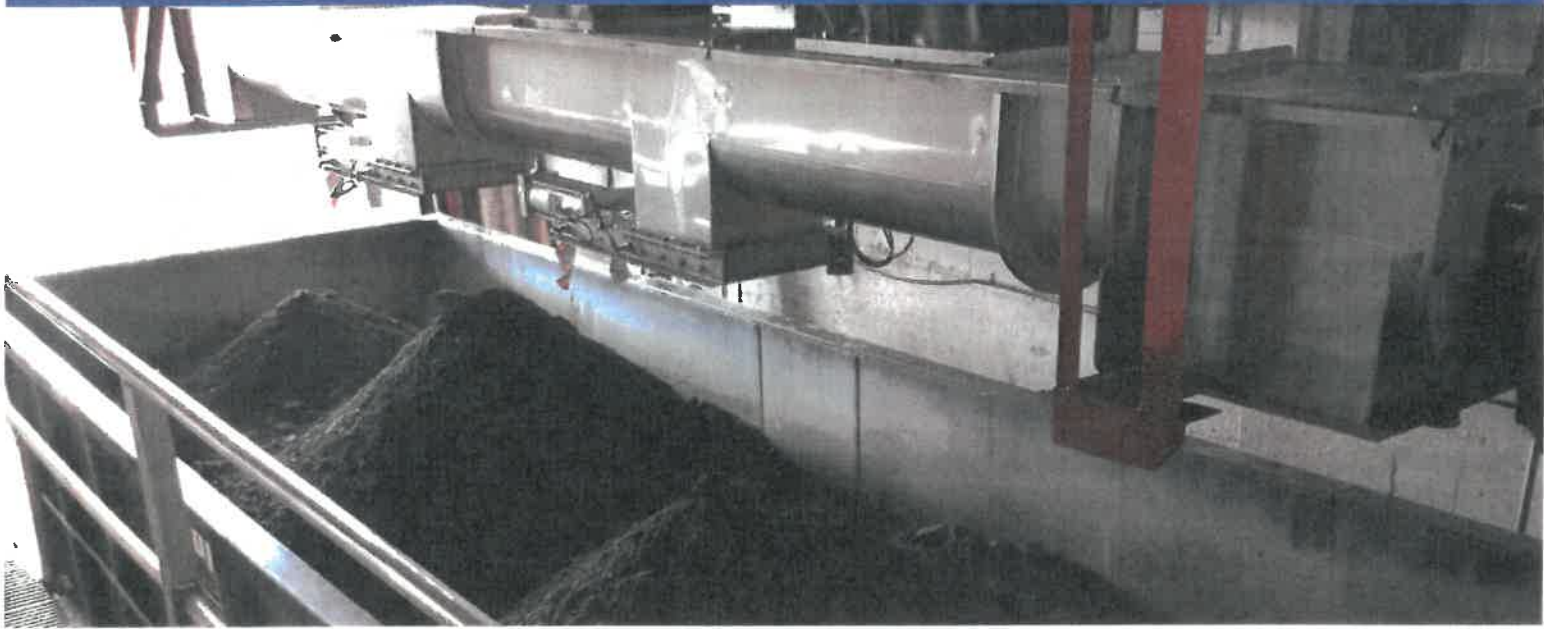
Another unique feature of the Rotary Press is the ability to order units that can be expanded at a future date. This allows customers to benefit from lower capital costs at time of purchase and expand according to need. Any combination of channels can be obtained, up to maximum of 8 channels per press.



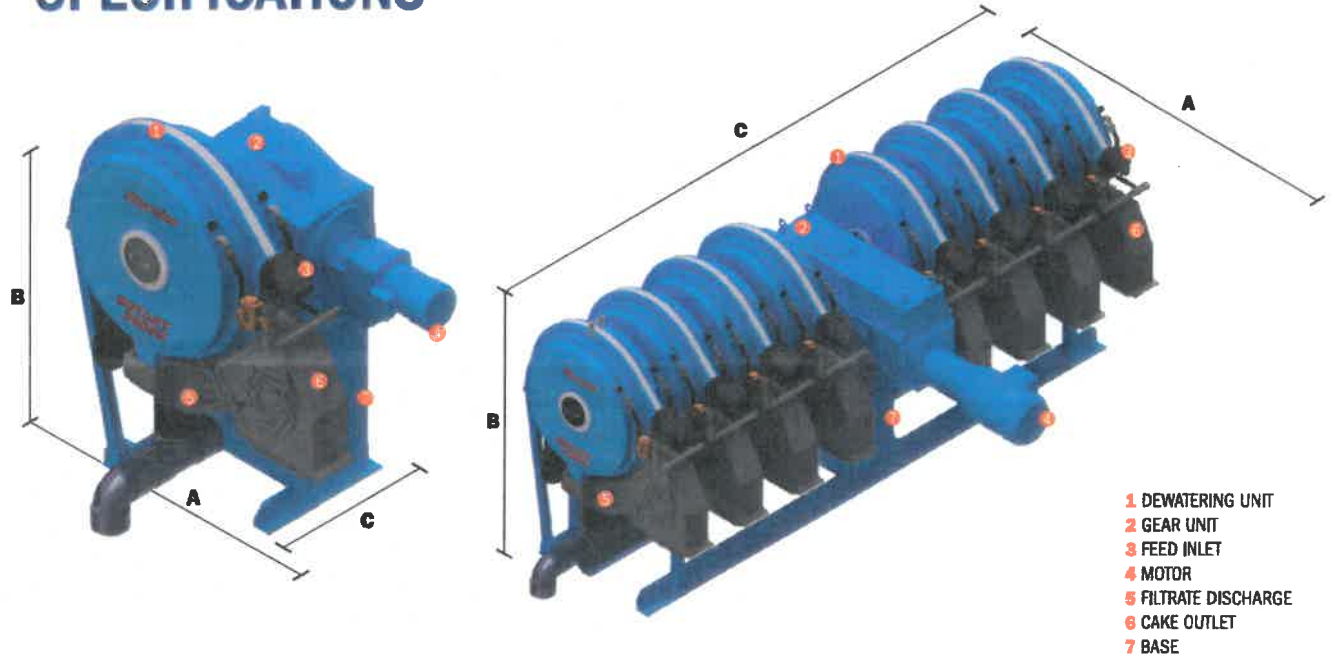
**TURNKEY SYSTEMS DELIVERED ON SKID, FOR SIMPLE,  
FAST AND ECONOMIC INSTALLATION**







# SPECIFICATIONS



MODEL NO.	MODEL	DIMENSIONS in. (mm)			WEIGHT Lb (kg)	MOTOR HP (kW)
	CHANNEL	A	B	C		
1-900/1000CV	1	70.3 (1785)	72.0 (1830)	40.5 (1028)	3966 (1799)	5.0 (3.7)
2-900/2000CV	2	77.5 (1969)	72.0 (1830)	64.8 (1646)	6854 (3109)	7.5 (5.6)
3-900/3000CV	3	79.0 (2007)	72.0 (1830)	85.8 (2180)	8498 (3855)	10.0 (7.5)
4-900/4000CV	4	91.3 (2320)	75.4 (1915)	101.6 (2580)	10280 (4663)	15.0 (11.1)
5-900/5000CV	5	92.8 (2358)	75.4 (1915)	123.0 (3124)	12235 (5550)	20.0 (15.0)
6-900/6000CV	6	92.8 (2358)	75.4 (1915)	144.4 (3668)	13649 (6191)	20.0 (15.0)
7-900/7000CV	7	94 (2388)	79 (2007)	176 (4471)	17409 (7913)	30.0 (22.5)
8-900/8000CV	8	94 (2388)	79 (2007)	187 (4750)	18820 (8555)	30.0 (22.5)

\* VARIES AS PER INSTALLATION LAYOUT



## Advantages of operation

- Continuous process
- Equipment totally enclosed, reduced airborne contaminants & odors
- Easy start-up and shut-down procedures
- Very simple to operate
- Minimal supervision required
- Completely automated and can be remotely controlled

## Maintenance

- Robust construction
- Small number of mechanical parts
- Slow rotation speed (0.2-2 rpm)
- Reduced corrosive exposure to nearby equipment
- Automated self-cleaning cycle
- Little maintenance

## Economy

- Savings on final disposal costs (high dryness)
- Minimal space requirements (small footprint)
- Low maintenance costs
- Reduced labor costs
- Low energy consumption
- Low water usage

## ACCESSORIES & MORE

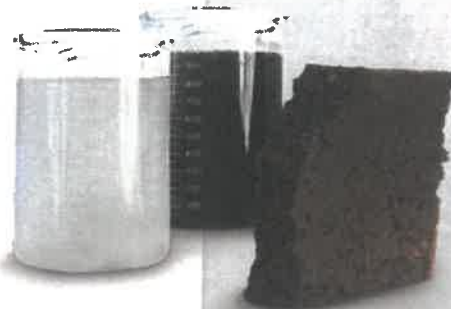
We have developed a wide variety of **customized accessories** for virtually any layout.

Custom-engineered systems for **total plant automation**, catering to every customer's individual needs.

Our engineering team will tackle any project and provide **complete package solutions** for any biosolid handling.

With a host of features tailored to your requirements, Fournier allows you to optimize your business operations.

- **Containerized & skid mounted units**
  - Complete turnkey projects
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- **Polymer feed systems**
  - Liquid or dry-feed polymer
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- **Shaftless screw conveyors**
  - Screw sizes from 9" to 18"
  - Lengths from 5ft to 200ft
- **Sludge pumps & other accessories**
  - Equipment of any size can be quickly assembled and shipped to your site.







## LABORATORY AND PILOT TESTING

In order to determine the size that meets your needs, we strongly recommend taking advantage of our **Free** laboratory tests.

These steps allow us to characterize sludge samples and to anticipate the performance of your Rotary Press, based on previous results in the same operation field.



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Fournier Rotary Press performance testing can be demonstrated by means of our mobile units. Our use of a full-scale pilot unit defines the performance of the Rotary Press on your typical sludge. Using the information from the pilot gives us the exact performance data needed for any final installation design.



**MORE THAN 490 INSTALLATIONS  
WORLDWIDE**



US Patent 7,166,229  
ISO-9001:2015

# **Appendix K**

## **Sewer Use Ordinance**

SEWER USE ORDINANCE

BRANDENBURG, KENTUCKY

September, 1991

Prepared by:

HOWARD K. BELL, CONSULTING ENGINEERS, INC.  
354 Waller Avenue  
P.O. Box 546  
Lexington, KY 40585

ORDINANCE NO. 322

AN ORDINANCE COMBINING THE OFFICES  
OF CITY CLERK, CITY TREASURER, AND  
CITY TAX COLLECTOR

BE IT ORDAINED BY THE CITY OF BRANDENBURG, KENTUCKY:

The offices of City Clerk, City Treasurer, and City Tax Collector are combined for the years 1992 and 1993. This Ordinance having been read for the first time on January 14, 1992, and read for the second time on February 10, 1992, and having passed shall become effective upon publication.

CITY OF BRANDENBURG, KENTUCKY

BY:

Carl T. Wells  
CARL T. WELLS, MAYOR

ATTEST:

Jo Anne Haley  
JO ANNE HALEY, City Clerk

SEWER USE ORDINANCE

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## ARTICLE I - GENERAL PROVISIONS

### A. Purpose and Policy

This ordinance sets forth uniform requirements for direct and indirect contributors into the wastewater collection and treatment system for the City of Brandenburg and enables the City to comply with all applicable State and Federal laws required by the Clean Water Act of 1977 and the general Pretreatment Regulations (40 CFR, Part 403).

The objectives of this ordinance are:

1. to prevent the introduction of pollutants into the municipal wastewater system which will interfere with the operation of the system or including interference with its use or disposal of municipal sludge;
2. to prevent the introduction of pollutants into the municipal wastewater system which will pass through the treatment works, inadequately treated, into receiving waters or the atmosphere or otherwise be incompatible with the system;
3. to improve the opportunity to recycle and reclaim municipal and industrial wastewaters and sludges from the system; and
4. to provide for equitable distribution of the cost of the municipal wastewater system.

This ordinance provides for the regulation of direct and indirect contributors to the municipal wastewater system through the issuance of permits to certain non-domestic users and through enforcement of general requirements for the other users, authorizes monitoring and enforcement activities, requires user reporting, and provides for the setting of fees for the equitable distribution of costs resulting from the program established herein.

This ordinance shall apply to the City of Brandenburg and to persons outside the City who are, by contract or agreement with the City users of the City's Publicly Owned Treatment Works (POTW). Except as otherwise provided herein, the Superintendent of the City POTW shall administer, implement and enforce the provisions of this ordinance.

### B. Definitions

Unless the context specifically indicates otherwise, the following terms and phrases, as used in this ordinance, shall have the meanings herein-after designated:

1. Act or "the Act." The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et. seq.
2. Approval Authority. The Secretary of the Kentucky Natural Resources and Environmental Protection Cabinet or an authorized representative thereof.
3. Authorized Representative. An authorized representative of a user may be: (1) A principal executive officer of at least the level of vice president, if the industrial user is a corporation; (2) a general partner or proprietor if the user is a partnership or proprietorship, respectively; (3) a duly authorized representative of the individual designated above if such representative is responsible for the overall operation of the facilities from which the indirect discharge originates.  
  
An authorized representative of the City may be any person designated by the City to act on its behalf.
4. Available. As used in connection with this ordinance, means a public sewer located at the property line or point at which connection may be made with the City sanitary sewage collection facilities.
5. Baseline Monitoring Report (BMR). A report submitted by the industrial user, who is subject to categorical pretreatment standards and is currently discharging to or is scheduled to discharge to a POTW, within 180 days after the effective date of a categorical pretreatment standard.
6. Biochemical Oxygen Demand (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure, five (5) days at 20° Celsius expressed in terms of weight and concentration in milligrams per liter (mg/l).
7. Building Drain. That part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five (5) feet outside the inner face of the building wall.
8. Building Sewer. The extension from the building drain to the public sewer or other place of disposal, also called "house connection."
9. Building Sewer Permit. As set forth in "Building Sewers and Connections" (Article IV).
10. Categorical Standards. National Categorical Pretreatment Standards or Pretreatment Standard. Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307 (b) and(c) of the Act (33 U.S.C. 1347) which applies to a specific category of industrial users.



11. City. The City of Brandenburg; its City Council, Sewer Department or other entity having responsibility for the POTW.
12. Combined Sewer. Any conduit carrying both sanitary sewage and storm water or surface water.
13. Compatible Pollutant. Biochemical oxygen demand, suspended solids and fecal coliform bacteria; plus any additional pollutants identified in the POTW's NPDES/KPDES permit, where the POTW is designed to treat such pollutants and, in fact, does treat such pollutants to the degree required by the POTW's NPDES/KPDES permit.
14. Composite Wastewater Sample. A combination of individual samples of water or wastewater taken at selected intervals, generally hourly for some specified period, to minimize the effect of variability of the individual sample. Individual samples may have equal volume or may be proportioned to the flow at the time of the sampling.
15. Concentration-based Limit. A limit based on the relative strength of a pollutant in a wastestream, usually expressed in mg/l.
16. Control Authority. The entity directly administering and enforcing pretreatment standards and requirements against industrial users. The City has an approved Pretreatment Program under the provisions of 40 CFR 403.11 and is, therefore, designated the Control Authority.
17. Cooling Water or Noncontact Cooling Water. The water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product or finished product.
18. County Health Department. The Meade County Health Department.
19. Daily Maximum. The maximum allowable for any single observation in a given day.
20. Dilution Stream. Any wastewater not generated by a process regulated for the specific pollutant by a categorical standard under 40 CFR, Subchapter N.
21. Direct Discharge. The discharge of treated or untreated wastewater directly to the waters of the Commonwealth of Kentucky.
22. Discharger. Any person that discharges or causes a discharge to a public sewer.
23. Domestic Wastewater. The water-carried wastes produced from non-commercial or non-industrial activities and which result from normal human living processes.

24. Easement. An acquired legal right for the specific use of land owned by others.
25. Environmental Protection Agency, or EPA. The U.S. Environmental Protection Agency or, where appropriate, the term may also be used as a designation for the Administrator or other duly authorized official of said agency.
26. Equipment. All movable, non-fixed items necessary to the wastewater treatment process.
27. Federal Pretreatment Standards. Federal regulations for pretreatment of industrial wastewater under 40 CFR Part 307, 402, 403, 405 and other applicable regulations, as amended.
28. Floatable Oil. Oil, fat or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pretreatment facility. A wastewater shall be considered free of floatable oil if it is properly pretreated and the wastewater does not interfere with the proper operation of the collection system.
29. Garbage. The animal and vegetable waste resulting from the handling, preparation, cooking and serving of foods.
30. Grab Sample. A sample which is taken from a waste stream on a one-time basis with no regard to the flow in the waste stream and without consideration of time.
31. Holding Tank Waste. Any waste from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, and vacuum-pump tank trucks.
32. Incompatible Pollutant. All pollutants other than compatible pollutants as defined in paragraph 13 of this article.
33. Indirect Discharge. The introduction of pollutants into a POTW from any non-domestic source regulated under section 307(b), (c) or (d) of the Act, (33 U.S.C. 1317).
34. Industrial User. A source of Indirect Discharge which does not constitute a "discharge of pollutants" under regulations issued pursuant to Section 402, of the Act (33 U.S.C. 1342).
35. Industrial Wastes. The wastewater from industrial or commercial processes as distinct from domestic or sanitary wastes.
36. Interceptor. A device designed and installed so as to separate and retain deleterious, hazardous or undesirable matter from normal wastes while permitting normal sewage or liquid wastes to discharge into the sewer system or drainage system by gravity. Interceptor as defined herein is commonly referred to as a grease, oil or sand trap.



37. Interference. A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:
- (1) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
  - (2) Therefore, is a cause of a violation of any requirement of the POTW's KPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.
38. Manager. The person employed by the City of Brandenburg as Manager of the entire municipal water and sewer system, or his authorized deputy, agent or representative.
39. Maximum Daily Concentration. The maximum concentration of a pollutant based on the analytical results obtained from a 24 hour composite sample.
40. May. This is permissive (see "shall," paragraph 67.)
41. Monthly Average. The maximum allowable value for the average observations obtained during one month.
42. Multi-Unit Sewer Customer. A location served where there are two or more residential units or apartments, two or more businesses in the same building or complex or where there is any combination of business and residence in the same building or complex.
43. National (or Kentucky) Pollutant Discharge Elimination System or NPDES/KPDES Permit. A permit issued pursuant to Section 402 of the Act (33 U.S.C. 1332), or a permit issued by the Commonwealth of Kentucky under this authority and referred to as KPDES.
44. Natural Outlet. Any outlet, including storm sewers, into a watercourse, pond, ditch, lake or other body of surface or groundwater.
45. New Source. Any building, structure, facility or installation from which there is or may be the discharge of pollutants, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance under Section 306 of the Act which will be applicable to such source, if such standard is thereafter promulgated within 120 days of proposal in the Federal Register. Where the standard is

promulgated later than 120 days after proposal, a new source means any source, the construction of which is commenced after the date of promulgation of the standard.

46. Ninety Day Compliance Report. A report submitted by an industrial user who is subject to pretreatment standards and requirements, within 90 days following the date for final compliance, indicating the nature and concentration of all pollutants in the discharge.
47. Operation and Maintenance Expenses. All annual operation and maintenance expenses including replacement related directly to operating and maintaining the sewage works as shown by annual audit.
48. Pass Through. A discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's KPDES permit (including an increase in the magnitude or duration of a violation).
49. Periodic Compliance Report. Reports submitted by the industrial user indicating the nature and concentration of pollutants in the effluent which are limited by categorical pretreatment standards. These reports are submitted to the City during the months of June and December unless otherwise specified by the City.
50. Person. Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other legal entity, or their legal representatives, agent or assigns. The masculine gender shall include the feminine, the singular shall include the plural where indicated by the context.
51. pH. The logarithm of the reciprocal of the hydrogen ion concentration. The concentration is the weight of hydrogen ions, in grams, per liter of solution.
52. Pollutant. Any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.
53. Pollution. The man-made or man-induced alteration of the chemical, physical, biological and radiological integrity of water.
54. POTW Treatment Plant. That portion of the POTW designed to provide treatment to wastewater.
55. Pretreatment or Treatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of



the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes, or process changes other means, except as prohibited by 40 CFR Section 403.6 (d).

56. Pretreatment Requirements. Any substantive or procedural requirement related to pretreatment, other than a National Pretreatment Standard imposed on an industrial user.
57. Pretreatment Standard. Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with section 307(b) and (c) of the Act, which applies to Industrial Users. This term includes prohibitive discharge limits established pursuant to 40 CFR Section 403.5.
58. Properly Shredded Garbage. The wastes from the preparation, cooking and dispensing of food that has been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than 1/2 inch in any dimension.
59. Publicly Owned Treatment Works (POTW). A treatment works as defined by Section 212 of the Act, (33 U.S.C. 1292) which is owned, in this instance, by the City. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.
60. Public Sewer. A common sewer controlled by a governmental agency or public utility. In general, the public sewer shall include the main sewer in the street and the service branch to the curb or property line, or a main sewer on private property and the service branch to the extent of ownership by public authority.
61. Replacement. Expenditures for obtaining and installing equipment, accessories or appurtenances which are necessary during the service life of the treatment works to maintain the capacity and performance for which such works were designed and constructed.
62. Sanitary Sewer. A sewer that carries liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions.
63. Sewage. The spent water of a community. Domestic or sanitary waste shall mean the liquid or water-carried wastes from residences, commercial buildings and institutions as distinct from industrial sewage. The terms "sewage" and "wastewater" are used interchangeably.

64. Sewerage System or Works. All facilities for collecting, transporting, pumping, treating and disposing of sewage and sludge, namely the sewerage system and POTW.
65. Sewer. A pipe or conduit that carries wastewater or drainage water.
66. Sewer Department. The Brandenburg Sewer Department.
67. Sewer User Charges. A system of charges levied on users of a POTW for the cost of operation and maintenance, including replacement, of such works.
68. Shall. Is mandatory (see "may," paragraph 34).
69. Significant User. All industrial users subject to categorical pretreatment standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- Any other industrial user that:
- (1) discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater);
  - (2) contributes a process wastestream which makes up 5% or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or
  - (3) is designated as such by the City as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).
70. Slug. Any discharge of water or wastewater which, in concentration of any given constituent or in quantity of flow, exceeds, for any period of duration longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration or flow rate during normal operation and/or adversely affects the POTW.
71. Specifications. The City's specifications for water and sewer system design, construction and inspection, latest revision.
72. Standard Industrial Classification (SIC). A classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, U.S. Bureau of the Budget, 1972.
73. Standard Methods. The examination and analytical procedures set forth in the most recent edition of Standard Methods for the Examination of Water and Wastewater, published jointly by the



American Public Health Association, the American Water Works Association and the Water Pollution Control Federation and as set forth in the Congressional Record 40 CFR 136.

74. State. Commonwealth of Kentucky.
75. Storm Drain (Sometimes Termed "Storm Sewer"). A drain or sewer for conveying water, groundwater, surface water or unpolluted water from any source.
76. Storm Water. Any flow occurring during or following any form of natural precipitation and resulting therefrom.
77. Superintendent. The Superintendent of wastewater facilities of the City of Brandenburg or his authorized deputy, agent or representative.
78. Surcharge. A charge for services in addition to the basic sewer user and debt service charges.
79. Suspended Solids (TSS). Total suspended matter that either floats on the surface of, or is in suspension in, water, wastewater or other liquids and that is removable by laboratory filtering as prescribed in Standard Methods for the Examination of Water and Wastewater and 40 CFR 136.
80. Toxic Pollutant. Any pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administrator of the Environmental Protection Agency under the provisions of CWA Section 307 (a) or other Acts.
81. Unpolluted Water. Water of quality equal to or better than the treatment works effluent criteria in effect or water that would not cause violation of receiving water quality standards and would not be benefited by discharge to the sanitary sewers and wastewater treatment facilities provided.
82. User. Any person who contributes, causes or permits the contribution of wastewater into the POTW.
83. User Charge. The charge levied on all users, including but not limited to, persons, firms, corporations or governmental entities that discharge, cause or permit the discharge of sewage into the POTW.
84. Wastewater. The spent water of a community. Sanitary or domestic wastes shall mean the liquid and water carried wastes from residences, commercial buildings and institutions as distinct from industrial waste.
85. Wastewater Contribution Permit. As set forth in the Administration Section of this ordinance.

86. Wastewater Facilities. The structures, equipment and processes required to collect, carry away and treat domestic and industrial wastes and dispose of the effluent.
87. Wastewater Treatment Works. An arrangement of devices and structures for treating wastewater, industrial wastes and sludge. Sometimes used as synonymous with "waste treatment plant" or "wastewater treatment plant" or "water pollution control plant" or "sewage treatment plant."
88. Watercourse. A natural or artificial channel for the passage of water either continuously or intermittently.
89. Waters of the State. All streams, lakes, ponds, marshes, water courses, waterways, wells, springs, reservoirs, aquifers, irrigation system, drainage system and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the State or any portion thereof.

C. Abbreviations

The following abbreviations shall have the designated meanings:

ADMI	-	American Dye Manufacturers Institute
ASTM	-	American Society of Testing and Materials
BMP	-	Best Management Practice
BRJ	-	Best Professional Judgement
BOD	-	Biochemical Oxygen Demand
CFR	-	Code of Federal Regulations
CWA	-	Clean Water Act of 1979
EPA	-	Environmental Protection Agency
FR	-	Federal Register
GC/MS	-	Gas Chromatograph/Mass Spectrophotometer
gpd	-	gallons per day
IU	-	Industrial User
KPDES	-	Kentucky Pollutant Discharge Elimination System
l	-	Liter
mg	-	Milligrams
mg/l	-	Milligrams per liter
NPDES	-	National Pollutant Discharge Elimination System
POTW	-	Publicly Owned Treatment Works
QA	-	Quality Assurance
QC	-	Quality Control
RCRA	-	Resource Conservation and Recovery Act
SIC	-	Standard Industrial Classification
SWDA	-	Solid Waste Disposal Act, 42 U.S.C. 6901, et. seq.
TSS	-	Total suspended solids
TTO	-	Total Toxic Organics
USC	-	United States Code



## ARTICLE II - USE OF PUBLIC SEWERS

### A. Mandatory Sewer Connection

1. The owner(s) of all houses, buildings or properties used for human occupancy, employment, recreation or other purposes situated within the City and abutting on any street, alley or right-of-way in which there is now located, or may in the future be located, a public sanitary sewer of the City, is hereby required at the owner's expense to install suitable toilet facilities therein and to connect such facilities directly with the proper public sewer, in accordance with the provisions of this ordinance, within ninety (90) days after date of official notice to do so, provided that said public sewer is within one hundred (100) feet (30.5 meters) of the property line.
2. It shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended or used for the disposal of wastewater where public sanitary sewer service is available, as defined in paragraph 1, except as provided for in "Private Wastewater Disposal" (Article III). The existence within the City, wherever the services of the City sanitary sewage collection, treatment and disposal facilities are available, or may hereafter be made available (as the term "available" is hereinbefore defined), of septic tanks, seepage laterals, privys, earthpits, cesspools, sanitary waste vaults, sewage drainage fields, private sewage disposal systems, or any other such facilities or works for the disposition of sanitary sewage wastes, other than the facilities of the City, is hereby declared to be a menace to the public health, safety and general welfare of the citizens and inhabitants of the City and is hereby determined and declared to constitute a public nuisance. The existence of such facilities as toilets, sinks, wash basins, showerbaths, bathtubs, any commercial or industrial machinery or device producing a liquid waste product, etc., in or upon any improved property or premises in said City where the facilities of the City's sewage collection, treatment and disposal system are available, or may hereafter be made available, is similarly declared to be a menace to the public health and general welfare of the City and its inhabitants unless such facilities are connected to the City sewage collection, treatment and disposal system. The Superintendent may prescribe the type and manner of connection to said facilities and may require that each connection be supervised and inspected by an authorized and qualified agent of the City.
3. At such time as a public sewer becomes available to a property served by a private wastewater disposal system, a direct connection shall be made to the public sewer system in compliance with this ordinance within ninety (90) days after such line is placed into service or within ninety (90) days of official notice to do so. Any septic tanks, cesspools and similar private wastewater disposal facilities shall be cleaned of sludge and filled with suitable material or salvaged and removed.

B. Unlawful Discharge to Storm Sewers or Natural Outlets

1. It shall be unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner, on public or private property within the City of Brandenburg or in any area under the jurisdiction of said City or into any sewer which connects to the storm sewer system of the City of Brandenburg, any objectionable wastewater or industrial wastes.
2. It shall be unlawful to discharge, to any natural outlet within the City of Brandenburg or in any area under the jurisdiction of said City, any wastewater or other polluted waters except where suitable treatment has been provided in accordance with subsequent provisions of this ordinance. No provision of this ordinance shall be construed to relieve the owner of a discharge to any natural outlet of the responsibility for complying with applicable State and Federal Regulations governing such discharge.

C. Compliance with Local, State and Federal Laws

1. The discharge of any wastewater into the public sewer system by any person is unlawful except in compliance with the provisions of this ordinance and any more stringent State or Federal Standards promulgated pursuant to the Federal Water Pollution Control Act Amendments of 1972, the Clean Water Act of 1977, and subsequent amendments.

D. Discharge of Unpolluted Waters into Sewer

1. No person(s) shall discharge, or cause to be discharged, through any leak, defect or connection any unpolluted waters such as stormwater, groundwater, roof runoff, subsurface drainage, or cooling water to any sanitary sewer, building sewer, building drain or building plumbing. The Superintendent or his representative shall have the right, at any time, to inspect the inside or outside of buildings or smoke test for connections, leaks or defects to building sewers and require disconnection or repair of any pipes carrying such water to the building sewer. Such waters shall not be removed through the dual use of a sanitary drain sump or a sump pump to building sanitary sewer. Discharge of such waters by a manual switch-over from sanitary sewer to storm drainage will not be an acceptable method of separation. In case both storm and sanitary sewage is present, separate drainage or pumping systems shall be included.
2. Stormwater, groundwater and all other unpolluted drainage may be discharged to such sewers as are used as storm sewers approved by the Superintendent. Unpolluted cooling water or unpolluted process waters may be discharged, on approval of the Superintendent, to a storm sewer or natural outlet. Under no circumstances shall sanitary sewage be discharged to a storm sewer.
3. The owners of any building sewers having such connections, leaks or defects shall bear all costs incidental to removal of such sources.



### ARTICLE III - PRIVATE WASTEWATER DISPOSAL

#### A. Public Sewer Not Available

1. Where a public sanitary sewer is not available under the provisions of "Use of Public Sewer" (Article II), the building sewer shall be connected, until the public sewer system is available, to a private wastewater disposal system complying with the provisions of applicable local and state regulations.
2. The owner shall operate and maintain the private sewage disposal facilities in a sanitary manner at all times, at no expense to the City. When it becomes necessary, the sludge may be disposed of only as approved by the City, by operators licensed by the City for such purposes.
3. No statement contained in this Article shall be construed to interfere with any additional requirements that may be imposed by applicable local or state regulations.
4. Holders of NPDES/KPDES Permits Excepted. Industries with current NPDES/KPDES permits may discharge at permitted discharge points provided they are in compliance with the conditions of said permit.

#### B. Requirements for Installation

1. The type, capacity, location and layout of a private sewage disposal system shall comply with all local or State regulations. Before commencement of construction of a private sewage disposal system, the owner shall first obtain a written permit issued by the City after approval of the system by the local and State authorities if required. The application for such permit shall be made on a form furnished by the City which the applicant shall supplement by any plans, specifications, and other information as are deemed necessary by the Superintendent.
2. A permit for private sewage disposal system shall not become effective until the installation is completed to the satisfaction of the local and State authorities, if required. They shall be allowed to inspect the work at any stage of construction and in any event the applicant for the permit shall notify the Superintendent when the work is ready for final inspection and before any underground portions are covered. The inspection shall be made within forty-eight (48) hours of the receipt of notice by the Superintendent, Saturdays, Sundays and holidays excepted.
3. No permit shall be issued for any private wastewater disposal system employing subsurface soil absorption facilities where the area of the lot is less than 21,750 square feet.
4. No septic tank or cesspool shall be permitted to discharge to any natural outlet.

#### ARTICLE IV - BUILDING SEWERS AND CONNECTIONS

##### A. Permits

1. There shall be two (2) classes of building sewer permits required; (a) for residential and (b) for service to commercial and industrial establishments. In either case, the owner(s) or his agent shall make application on a special form furnished by the City. Applicants for service to commercial and industrial establishments shall be required to furnish information about all waste producing activities, wastewater characteristics and constituents. The permit application shall be supplemented by any plans, specifications or other information considered pertinent in the judgement of the Superintendent. Details regarding commercial and industrial permits include but are not limited to those required by this ordinance. A permit and inspection fee of \$150.00 shall be paid to the City at the time the application is filed.
2. Users shall notify the Superintendent of any proposed new introduction of wastewater constituents or any proposed substantial change in the volume or character of the wastewater constituents being introduced into the POTW a minimum of thirty (30) days prior to the change. The Superintendent may deny or condition this new introduction or change based upon the information submitted in the notification.
3. No unauthorized person(s) shall uncover, plug or make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining written permission from the City.

##### B. Prohibited Connections

1. No person shall make connection of roof downspouts, basement wall seepage or floor seepage, exterior foundation drains, areaway drains, or other sources of surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer. Any such connections which already exist on the effective date of this ordinance shall be completely and permanently disconnected within sixty (60) days of the effective date of this ordinance. The owners of any building sewers having such connections, leaks or defects shall bear all costs incidental to removal of such sources. Pipes, sumps and pumps for such sources of ground and surface water shall be separate from wastewater facilities. Removal of such sources of water without presence of separate facilities shall be evidence of drainage to public sanitary sewer.
2. Floor, basement or crawl space drains which are lower than ground surfaces surrounding the building shall not be connected to the building sanitary sewer. No sanitary inlet which is lower than six (6) inches above the top of the lowest of the two adjacent public sanitary sewer manholes shall be connected by direct drainage to the building sanitary sewer.



C. Design and Installation

1. A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, courtyard or driveway, the sewer from the front building may be extended to the rear building and the whole considered as one building sewer, but the City does not and will not assume any obligation or responsibility for damage caused by or resulting from any such single connection aforementioned.
2. Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the Superintendent, to meet all requirements of this ordinance. Permit and inspection fees and tap-on fees for new buildings using existing building sewers shall be the same as for new building sewers. If additional sewer consumers or additional facilities are added to the old building sewers, additional sewer tap fees shall be charged accordingly even though no new sewer tap is actually made into the City's POTW.
3. Extension of customer service lines from any point on the customers side of the tap for delivery of waste from any location other than that of the customer in whose name the tap is registered shall not be permitted.
4. The building sewer shall be cast iron soil pipe, ASTM A-74, latest revision, PVC (polyvinyl-chloride) sewer pipe, ASTM D-3034, latest revision, or ductile iron pipe, AWWA Specification C-151 cement lined, and shall meet requirements of State plumbing code. Joints shall be as set out hereinafter. Any part of the building sewer that is located within five feet of a water service pipe shall be constructed with cast iron soil pipe or ductile iron pipe, unless the building sewer is at least one foot deeper in the ground than the water service line. In the latter case, vitrified clay pipe may be used. Cast iron soil pipe or ductile iron pipe may be required by the City where the building sewer is exposed to damage or stoppage by tree roots. Cast iron soil pipe or ductile iron pipe shall be used in filled or unstable ground, in areas where the cover over the building sewer is less than three feet, or in areas where the sewer is subject to vehicular or other external loads.
5. The size, slope, alignment, materials of construction of a building sewer and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench, shall all conform to the requirements of the local and state building and plumbing codes and other applicable rules and regulations of the City. In general, the building sewer shall not be less than four inches in diameter. The slope of the building sewer shall in no event be less than one eighth (1/8) inch per foot.



6. In the absence of local code provisions or in amplification thereof, the materials and procedures set forth in appropriate specifications of the ASTM and WPCF Manual of Practice No. 9 shall apply.
7. No building sewer shall be laid parallel to within three feet (3') of any bearing wall which might thereby be weakened. The depth shall be sufficient to afford 24 inches of cover over pipe except where exposed to vehicular traffic. Portions of the building sewer subject to vehicular traffic shall have a minimum cover of 36 inches or be encased in a six-inch envelope of concrete. The building sewer shall be laid at uniform grade and in straight alignment insofar as possible.
8. All costs and expenses incidental to the installation and connection of the building sewer shall be borne by the owner(s). The owner(s) shall indemnify the City for any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer. Fees for connection shall be as established by the City.
9. The owner shall ensure that all excavations for building sewer installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the City.
10. In all buildings in which any sanitary facility drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such drain shall be lifted by an approved means and discharged to the building sewer. Drain pipe and sump for collection of such sanitary drainage shall be above basement floor or in a separate watertight or drained sump or channel.
11. All excavations required for the installation of a building sewer shall be open trench work unless otherwise approved by the Superintendent and all such trenches shall be kept open until the pipe has been inspected, tested and approved by the Superintendent. Except where bends are supplied, trenches shall be straight in direction and grade to accommodate prefabricated joints. Trenches shall be at least 20 inches wide at right angles to the center line of the pipe. Building sanitary sewers laid in undisturbed ground must be laid on at least six inches of pea gravel, sand or other approved grillage to support the pipe. The trench shall be filled with the same approved grillage on each side of the pipe and six inches over same. Building sewers laid in mud or filled ground shall be embedded to lower quadrant with at least a four-inch concrete pad below the invert or other support that may be considered necessary. Backfill shall be carefully tamped in and around pipe in not over four-inch layers to top of pipe for proper support. Backfill shall be solidly tamped above the pipe and hand placed up to 18 inches above the

pipe. No backfill shall be placed over the pipe until the pipe laying has been inspected by the Superintendent or his duly authorized agent.

12. All joints and connections shall be made gas tight and water tight. Joints for cast iron soil pipe and fittings with hubs and plain end spigots shall be made with caulked lead and oakum as specified in Chapter 4, ASA A40.8 or by using positive double-seal elastomeric compression-type gaskets conforming to ASTM C-564. Service pipe shall be joined with service gaskets and extra heavy pipe with extra heavy gaskets. All joints between vitrified clay pipe and other approved pipe shall be made with an approved prefabricated rubber or plastic material conforming to ASTM Specification C-425, latest revision, and installed clean and uninjured by handling or weather according to manufacturers' direction, completely "homed" into place. The vitrified clay sewer pipe shall be jointed with compressed watertight rubber rings meeting ASTM Specification D-1869, latest revision, and installed clean, according to manufacturers' directions. The ductile iron pipe shall be joined together with watertight rubber gaskets in accordance with the manufacturers' directions. The PVC pipe joints shall conform to ASTM D-3212, latest revision, and elastomeric gaskets to ASTM F477.
13. The building sewer shall be connected into the public sewer at the easement or property line. Where no properly located service branch is available, an authorized agent of the City shall cut a neat hole into the main line of the public sewer and a suitable wye or tee saddle installed to receive the building sewer. The invert of the building sewer, at such point of connection with a saddle, shall be in the upper quadrant of the main line of the public sewer. A neat workmanlike connection not extending past the inner surface of the public sewer shall be made and the saddle made secure and watertight by encasement in epoxy cement specially prepared for this purpose. A wye and H bend fitting shall be installed at the property line between the public sewer and the building sewer. This fitting shall serve the purpose of a clean-out and for applying the smoke test during inspection of the line. After testing, a cast iron or ductile iron riser will be inserted in this fitting and brought flush with the ground surface. A stopper or plug, outfitted with a type joint applicable to the pipe used, shall seal this riser against the intrusion of ground or surface water.
14. All building sanitary sewer lines will be installed so as to meet or exceed the most current revision of the State Plumbing Code.
15. All persons working on City sewers with a cleaning rod must use an approved type rod in cleaning sewer connections to City sewers.



D. Inspection

1. The applicant for the building sewer permit shall notify the Superintendent when the building sewer is ready for inspection and connection to the public sewer. The connection and testing shall be made under the supervision of the Superintendent or his representative. All connections shall be made gastight and watertight and verified by proper testing. Any deviation from the prescribed procedures and materials must be approved by the Superintendent before installation.
2. All building sewers shall be smoke tested through the wye branch at the public sewer connection or low pressure air tested per ASTM C-828-08, or latest revision, with public sewer tightly plugged off after connections at both ends are made and after all pipe is properly bedded and backfilled at least to top of pipe and if backfill is completed, within two weeks after completion of backfill. At time of test any openings into the building drain inside the building shall be water trapped or plugged. Any leakage of smoke from building sewer or building drain and plumbing shall be located at test and repaired to stand repetition of smoke test without leakage. When smoke testing is completed, the temporary flow line plug shall be removed and a permanent water tight plug shall be placed in branch of test wye-branch and carefully backfilled by hand and tamped to at least six inches above the top of the branch. The Superintendent shall determine the method of testing to be performed.

16. Any waters or wastes containing odor-producing substances exceeding limits which may be established by the City.
17. Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the City in compliance with applicable State or Federal Regulations.
18. Any waste(s) or wastewater(s) classified as a hazardous waste by the Resource Conservation and Recovery (RCRA) without a sixty (60) day prior notification of such discharge to the City. This notification must include the name of the hazardous waste, the EPA hazardous waste number, type of discharge, volume/mass of discharge and time of occurrence(s). The Superintendent may prohibit or condition the discharge(s) at any time.
19. Any water or wastes which, by interaction with other water or wastes in the public sewer system, release obnoxious gases, form suspended solids which interfere with the collection system, or create a condition deleterious to structures and treatment processes.
20. Waters or wastes containing substances which are not amenable to treatment or reduction by the wastewater treatment processes employed or are amenable to treatment only to such degree that the wastewater treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.
21. Any water or waste which has characteristics based on a 24 hour composite sample, or a shorter period composite sample if more representative which exceed the following normal maximum domestic wastewater parameter concentrations:

<u>Parameter</u>	<u>Maximum Allowable Concentration Without Surcharge</u>
BOD	250 mg/l
COD	750 mg/l
TSS	300 mg/l
NH <sub>3</sub> -N	30 mg/l
TKN	50 mg/l

22. In addition to the requirements stated above, the following limitations are established for characteristics of any wastewaters to be discharged into the municipal sewer system:

<u>Parameter</u>	<u>Max. Daily Concentration (mg/l)</u>	<u>Parameter</u>	<u>Max. Daily Concentration (mg/l)</u>
Arsenic, total	0.05	Iron, total	8.75
Barium, total	6.00	Lead, total	0.13
Beryllium, total	0.50	Magnesium, total	14.00
Boron, total	1.00	Manganese, total	1.43
Cadmium, total	0.02	Mercury, total	0.008
Chloride, total	250.0	Nickel, total	1.06
Chromium, hexavalent	0.20	Phenols	0.50
Chromium, total	0.50	PCB	0.00
COD	750.0	Selenium, total	0.02
Color	300 ADMI units*	Silver, total	0.05
Copper, total	0.20	Sulfate, total	250.0
Cyanide, amenable	0.02	Sulfide	5.00
Cyanide, total	0.04	Total Toxic organics	2.13
Dissolved Solids, total	1500.0	Zinc, total	1.35
Fluoride	2.00		

\*American Dye Manufacturers Institute (ADMI).

C. Dilution of Wastewater Discharge

No user shall ever increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in the Federal Categorical Pretreatment Standards, or in any other pollutant specific limitation developed by the City or State. Dilution may be permitted to pretreatment of compatible wastes if provided for in said users permit.

D. Grease, Oil, and Sand Interceptors

Grease, oil and sand interceptors shall be provided when, in the opinion of the Superintendent they are necessary for the proper handling of liquid wastes containing floatable grease in excessive amounts or any flammable wastes, sand or other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the Superintendent and shall be located as to be readily and easily accessible for cleaning and inspection. In the maintaining of these interceptors the owner(s) shall be responsible for the proper removal and disposal by appropriate means of the captured material and shall maintain records of the dates and means of disposal. The City may require reporting of such information for their review. Any removal and hauling of the collected materials not performed by owner(s) personnel must be performed by currently licensed waste disposal firms, interceptors shall also comply with applicable regulations of the County Health Department.

E. Special Industrial Pretreatment Requirements

1. Pursuant to the requirements imposed on publicly owned wastewater treatment works by the Federal Water Pollution Control Act Amendments of 1972 and later amendments, all pretreatment standards promulgated by



the U.S. Environmental Protection Agency for new and existing industrial dischargers to public sewer systems are hereby made a part of this ordinance. Any industrial waste discharge which violates these EPA Pretreatment Standards shall be in violation of this ordinance.

2. Where pretreatment or flow equalizing facilities are provided or required for any waters or wastes, they shall be maintained continuously, in satisfactory and effective operation, by the owner(s) at his expense.
3. Any person who transports septic tank, seepage pit or cesspool contents, liquid industrial waste or other batch liquid waste and wishes to discharge such waste to the public sewer system shall first obtain permission for such discharge from the Superintendent. All persons receiving such permission shall abide by all applicable provisions of this ordinance, and any other special provisions that may be established by the Superintendent as necessary for the proper operation and maintenance of the sewerage system.

In addition, any person holding a valid permit and wishing to discharge to the wastewater treatment plant must submit, to the Superintendent, a sample of each load prior to discharge. A fee and payment schedule shall be established in the permit to cover the cost of the required analyses.

Waste haulers who have been granted permission to discharge to the public sewer system shall pay fees for such discharge in accordance with a fee schedule established by the Superintendent and approved by the City.

It shall be illegal to discharge any batch liquid waste into any manhole or other part of the public sewer system, or any building sewer or other facility that discharges to the public sewer system, except at designated points of discharge by the City for such purposes.

Any liquid waste hauler illegally discharging to the public sewer system shall be subject to immediate revocation of discharge privileges (if granted) and further subject to the penalties prescribed in Article X.

Nothing in this ordinance shall relieve waste haulers of the responsibility for compliance with County Health Department, State or Federal Regulations.



4. The industrial user shall notify the POTW, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into the POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent such information is known and readily available to the industrial user: An identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve months. All notifications must take place within 180 days of the effective date of this rule. Industrial users who commence discharging after the effective date of this rule shall provide the notification no later than 180 days after the discharge of the listed or characteristic hazardous waste. Any notification under this paragraph need be submitted only once for each hazardous waste discharged. However, notifications of changed discharges must be submitted under 40 CFR 403.12(j). The notification requirement in this section does not apply to pollutants already reported under the self-monitoring requirements for 40 CFR 403.12(b), (d) and (e).

Dischargers are exempt from the requirements stated in the previous paragraph during a calendar month in which they discharge no more than fifteen kilograms of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e). Discharge of more than fifteen kilograms of non-acute hazardous wastes in a calendar month, or of any quantity of acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e), requires a one-time notification.

Subsequent months during which the industrial user discharges more than such quantities of any hazardous waste do not require additional notification.

In the case of any new regulations under section 3001 of RCRA identifying additional characteristics of hazardous waste or listing any additional substance as a hazardous waste, the industrial user must notify the POTW, the EPA Regional Waste Management Division Director and State hazardous waste authorities of the discharge of such substance within 90 days of the effective date of such regulations.

In the case of any notification made under this provision, the industrial user shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.

F. Protection from Accidental Discharge

1. Each significant user shall provide protection from accidental and/or slug discharges of prohibited materials or other substances regulated by this ordinance. Facilities to prevent accidental and slug discharges of prohibited materials shall be provided and maintained at the owner or user's own cost and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the City for review, and shall be approved by the City before construction of the facility. All existing users shall complete such a plan within ninety (90) days after the effective date of this ordinance. Construction shall be completed within 120 days of approval of plans and notification by the Superintendent. Once every two (2) years, the Superintendent will determine whether each significant industrial user needs to develop a plan to control slug discharges. If the Superintendent decides that a slug control plan is needed, the plan shall contain the following:
  - (a) description of discharge practices
  - (b) description of stored chemicals
  - (c) procedures for notifying the POTW
  - (d) prevention procedures for spills

In the case of an accidental discharge, it is the responsibility of the user to immediately telephone and notify the POTW of the incident. The notification shall include location of discharge, type of waste, concentration and volume, and corrective actions.

2. Written Notice. Within five (5) days following an accidental discharge, the user shall submit, to the Superintendent, a detailed written report describing the cause of the discharge and the measures to be taken by the user to prevent similar future occurrences. Such notification shall not relieve the user of any expense, loss, damage, or other liability which may be incurred as a result of damage to the POTW, fish kills, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by this article or other applicable law.
3. Notice to Employees. A notice shall be permanently posted on the user's bulletin board or other prominent place advising employees whom to call in the event of a dangerous discharge. Employers shall insure that all employees who may cause or suffer such a dangerous discharge to occur are advised of the emergency notification procedure.

G. State Requirements

State requirements and limitations on discharges shall apply in any case where they are more stringent than Federal requirements and limitations or those in this ordinance.

H. City's Right of Revision

The City reserves the right, at the recommendation of the Superintendent, to establish more stringent limitations or requirements on discharges to the POTW if deemed necessary to comply with the objectives presented in this ordinance.

I. Federal Categorical Pretreatment Standards

Upon the promulgation of the Federal Categorical Pretreatment Standards for a particular industrial subcategory, the Federal Standard, if more stringent than limitations imposed under this ordinance for sources in that subcategory, shall immediately supersede the limitations imposed under this ordinance. The Superintendent shall notify all affected users of the applicable reporting requirements under 40 CFR, Section 403.12.



## ARTICLE VI - PRETREATMENT PROGRAM ADMINISTRATION

### A. Wastewater Dischargers

It shall be unlawful to discharge, without a City permit, to any natural outlet within the City or in any area under the jurisdiction of said City and/or to the POTW any wastewater, except as authorized by the Superintendent, in accordance with the provisions of this ordinance.

Any agency and/or industry outside the jurisdiction of the City that desires to contribute wastewater to the POTW must first sign (through an authorized representative) an interjurisdictional agreement, whereby the agency and/or industry agrees to be regulated by all provisions of this ordinance and State and Federal regulations. A Wastewater Contribution Permit may then be issued by the Superintendent in accordance with Section B of this article.

### B. Wastewater Contribution Permits

#### 1. General

All significant users proposing to connect to or to contribute to the POTW shall obtain a Wastewater Contribution Permit before connecting to or contributing to the POTW. All existing significant users connected to or contributing to the POTW shall obtain a Wastewater Contribution Permit within 90 days after the effective date of this ordinance.

#### 2. Permit Application

Users required to obtain a Wastewater Contribution Permit shall complete and file, with the City, an application, in the form prescribed by the City, accompanied by a permit fee. Existing users shall apply for a Wastewater Contribution Permit within 30 days after the effective date of this ordinance and proposed new users shall apply at least 90 days prior to connecting to or contributing to the POTW. In support of the application, the user shall submit, in units and terms appropriate for evaluation, the following information:

- a. Name, name of operator and owner, address and location if different from the address;
- b. SIC number(s) according to the Standard Industrial Classification Manual, United States Bureau of the Budget, 1972, as amended;
- c. Wastewater constituents and characteristics as determined by an analytical laboratory acceptable to the City; sampling and analysis shall be performed in accordance with procedures established by the EPA pursuant to Section 304 (g) of the Act and contained in 40 CFR, Part 136, as amended;

- d. Time and duration of contribution;
- e. Average daily and 30 minute peak wastewater flow rates, including daily, monthly and seasonal variation if any;
- f. Site plans, floor plans, mechanical and plumbing plans and details to show all sewers, sewer connections, and appurtenances by the size, location and elevation;
- g. Description of activities, facilities and plant processes on the premises including all materials which are or could be discharged;
- h. Where known, the nature and concentration of any pollutants in the discharge which are limited by City, State or Federal Pretreatment Standards and a statement regarding whether or not the pretreatment standards are being met on a consistent basis and if not, whether additional pretreatment is required for the user to meet applicable Pretreatment Standards;
- i. If additional pretreatment will be required to meet the Pretreatment Standards, the shortest schedule by which the user will provide such additional pretreatment. The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard;

The following conditions shall apply to this schedule:

- (1) The schedule must be acceptable to the City.
  - (2) The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the user to meet the applicable Pretreatment Standards.
  - (3) Not later than 14 days following each date in the schedule and the final date for compliance, the user shall submit a progress report to the Superintendent including, as a minimum, whether or not it complied with the increment of progress to be met on such date and, if not, the date on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the users to return the construction to the schedule established.
- j. Each product produced by type, amount, process or processes, and rate of production;
  - k. Type and amount of raw materials processed (average and maximum per day);



- l. Number of employees and hours of operation of plant and proposed or actual hours of operation of pretreatment system;
- m. A copy of the industry's written environmental control program, comparable document or policy;
- n. Any other information as may be deemed by the City to be necessary to evaluate the permit application.
- o. A list of any environmental control permits held by or for the facility.

3. Issuance

The Superintendent shall evaluate the data furnished by the user and may require additional information. After evaluation and acceptance of the data furnished, the Superintendent may issue a Wastewater Contribution Permit subject to terms and conditions provided herein.

C. Permit Modifications

Within 9 months of the promulgation of National Categorical Pretreatment Standards, the Wastewater Contribution Permit of users subject to such standards shall be revised to require compliance with such standard within the time frame prescribed by such standard. Where a user subject to National Categorical Pretreatment Standards has not previously submitted an application for a Wastewater Contribution Permit as required, the user shall apply for a Wastewater Contribution Permit within 90 days after the promulgation of the applicable National Categorical Pretreatment Standard. In addition, the user with an existing Wastewater Contribution Permit shall submit, to the Superintendent, within 90 days after the promulgation of an applicable Federal Categorical Pretreatment Standard, the information required by this ordinance.

D. Permit Conditions

Wastewater Contribution Permits shall be expressly subject to all provisions of this ordinance and all other applicable regulations, user charges and fees established by the City. Permits may contain the following:

1. The unit charge or schedule of user charges and fees for the wastewater to be discharged to a community sewer;
2. Limits on the average and maximum wastewater constituents and characteristics;
3. Limits on average and maximum rate and time of discharge or requirements for flow regulations and equalization;
4. Requirements for installation and maintenance of inspection and sampling facilities;



5. Specifications for monitoring programs which may include sampling locations; frequency of sampling; number, types and standards for tests; and reporting schedule;
6. Compliance schedules;
7. Requirements for submission of technical reports or discharge reports (See Article VI.G.);
8. Requirements for maintaining and retaining, for a minimum of three years, plant records relating to wastewater discharge as specified by the City and affording City access thereto;
9. Requirements for notification of the City or any new introduction of wastewater constituents or any substantial change in the volume or character of the wastewater constituents being introduced into the wastewater treatment system;
10. Requirements for notification of slug discharges;
11. The permit may require the user to reimburse the City for all expenses related to monitoring, sampling and testing performed at the direction of the Superintendent and deemed necessary by the City to verify that the user is in compliance with said permit;
12. Other conditions as deemed appropriate by the City to ensure compliance with this ordinance.

E. Alternative Discharge Limits

Where an effluent from an industrial process(es) is mixed prior to treatment with wastewater other than those generated by the regulated process, fixed alternative discharge limits may be derived for the discharge permit by the Superintendent. These alternative limits shall be applied to the mixed effluent and shall be calculated using the Combined Wastestream Formula and/or Flow-Weighted Averaging Formula.

Where the effluent limits in a Categorical Pretreatment Standard are expressed only in terms of mass of pollutants per unit of production (production-based standard), the Superintendent may convert the limits to equivalent limitations expressed either as mass of pollutant discharged per day or of effluent concentration for purposes of calculating effluent permit limitations applicable to the permittee. The permittee shall be subject to all permit limits calculated in this manner under 40 CFR 403.6(c) and must fully comply with these alternative limits. All categorical industrial users subject to production-based standards must report production rates annually, so that alternative permit limits can be calculated if necessary. The categorical industrial user must notify the Superintendent thirty (30) days in advance of any change in production levels that might affect the flow or other data used to calculate the effluent limits in the discharge permit.

F. Permit Duration

Permits shall be issued for a specified time period, not to exceed three (3) years. A permit may be issued for a period less than a year or may be stated to expire on a specific date. The user shall apply for permit reissuance a minimum of 120 days prior to the expiration of the user's existing permit. The terms and conditions of the permit may be subject to modification by the City, during the term of the permit, as limitations or requirements as identified in Article V are modified or other just cause exists. The user shall be informed of any proposed changes in their permit at least 30 days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

G. Permit Transfer

Wastewater Contribution Permits are issued to a specific user for a specific operation. A Wastewater Contribution Permit shall not be reassigned or transferred or sold to a new owner, new user, different premises, or a new or changed operation without the approval of the City. Any succeeding owner or user shall also comply with the terms and conditions of the existing permit.

H. Reporting Requirements for Permittee

1. Compliance Data Reporting

Within 90 days following the date for final compliance with applicable Pretreatment Standards or, in the case of a new user, following commencement of the introduction of wastewater into the POTW, any user subject to Pretreatment Standards and Requirements shall submit, to the Superintendent, a report indicating the nature and concentration of all pollutants in the discharge from the regulated process which are limited by Pretreatment Standards and Requirements and the average and maximum daily flow for these process units in the user's facility which are limited by such Pretreatment Standards or Requirements. The report shall state whether the applicable Pretreatment Standards or Requirements are being met on a consistent basis and, if not, what additional pretreatment and time schedule is necessary to bring the user into compliance with the applicable Pretreatment Standards or Requirements. This statement shall be signed by an authorized representative of the user.

2. Periodic Compliance Reports

- a. All significant industrial users shall submit, to the Superintendent, during the months of June and December, unless required more frequently in the Pretreatment Standard or by the Wastewater Contribution Permit, a report indicating the nature and concentration of pollutants in the effluent which are limited by such Pretreatment Standards. In addition, this report shall include a record of measured

or estimated average or maximum daily flows for the reporting period. At the discretion of the Superintendent and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., the Superintendent may agree to alter the months during which the above reports are to be submitted. The City may require more detailed reporting of flows as determined by the Superintendent.



- b. The Superintendent may impose mass limitations on users where their imposition is appropriate. In such cases, the report required by Section G.1. of this article shall indicate the mass of pollutants regulated by Pretreatment Standards in the effluent of the user.

The industrial user shall notify the POTW immediately of any slug loading as defined herein by the industrial user. These reports shall contain the results of sampling and analysis of the discharge, including the flow and the nature and concentration or production and mass, where requested by the Superintendent, of pollutants contained therein which are limited by the applicable Pretreatment Standards. All analyses shall be performed by a laboratory acceptable to the City. Analytical procedures shall be in accordance with procedures established by the U.S. EPA Administrator pursuant to Section 304(g) of the Act and contained in 40 CFR Part 136 and amendments thereto or with any other test procedures approved by the U.S. EPA Administrator. Sampling shall be performed in accordance with the techniques approved by the U.S. EPA Administrator.

- c. Where 40 CFR, Part 136 does not include sampling or analytical techniques for the pollutant in question, sampling and analysis shall be performed in accordance with the procedures set forth in the EPA publication, "Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants," April, 1977 and amendments thereto, or with any other sampling and analytical procedures approved by the U.S. EPA Administrator.
- d. The reports required by paragraphs (a), (b) and (c) of this section must be signed by an authorized representative of the industrial user as defined by this ordinance.

#### I. Permit Violation

All significant industrial users must notify the Superintendent within 24 hours of first becoming aware of a permit violation. This notification shall include the date of violation, the parameter violated and the amount in exceedance.

The user shall immediately repeat the sampling and analysis of the parameter(s) in question and submit the results to the Superintendent within thirty (30) days after becoming aware of the violation. Exception to this regulation is only if the City performs the sampling within the same time period for the same parameter(s) in question.

#### J. Monitoring Facilities

The City shall require significant users to provide and operate, at the user's own expense, monitoring facilities to allow inspection, sampling



and flow measurement of the building sewer and/or internal drainage system. The monitoring facility should normally be situated on the user's premises, but the City may, when such a location would be impractical or cause undue hardship on the user, allow the facility to be constructed in a public right-of-way. The Superintendent shall review and approve the location, plans and specifications for such monitoring facilities and may require them to be constructed to provide for the separate monitoring and sampling of industrial waste and sanitary sewage flows.

There shall be ample room in or near such sampling manhole or facility to allow accurate sampling and preparation of samples for analysis. The facility, sampling and measuring equipment shall be maintained at all times in a safe and proper operating condition at the expense of the user.

Whether constructed on public or private property, the sampling and monitoring facilities shall be provided in accordance with the City's requirements and all applicable local construction standards and specifications. Construction shall be completed within 90 days following approval of the location, plans and specifications.

All sampling analyses done in accordance with approved federal EPA procedures by the industrial user during a reporting period shall be submitted to the Superintendent regardless of whether or not that analysis was required by the industrial user's discharge permit.

The industrial user must receive the approval of the Superintendent before changing the sampling point and/or monitoring facilities to be used in all required sampling.

K. Inspection and Sampling

The City shall inspect the facilities of any user to ascertain whether the purpose of this ordinance is being met and all requirements are being complied with. Persons or occupants of premises where wastewater is created or discharged shall allow the City, or their representative, ready access, at all reasonable times, to all parts of the premises for the purposes of inspection, sampling, copying records, records examination or in the performance of any of their duties.

The City, Approval Authority and EPA shall have the right to set up, on the users property, such devices as are necessary to conduct sampling inspection, compliance monitoring and/or metering operations. Where a user has security measures in force which would require proper identification and clearance before entry into their premises, the user shall make necessary arrangements for their security guards so that, upon presentation of suitable identification, personnel from the City, Approval Authority and EPA will be permitted to enter, without delay, for the purposes of performing their specific responsibilities.

L. Pretreatment

Users shall provide necessary wastewater treatment as required to comply with this ordinance and shall achieve compliance with all Federal Categorical Pretreatment Standards within the time limitations as specified by the Federal Pretreatment Regulations. Any facilities required to pretreat wastewater to a level acceptable to the City shall be provided, operated and maintained at the user's expense. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the City for review and shall be acceptable to the City before construction of the facility. The review of such plans and operating procedures will, in no way, relieve the user from the responsibility of modifying the facility as necessary to produce an effluent acceptable to the City under the provisions of this ordinance. Any subsequent changes in the pretreatment facilities or method of operation shall be reported to and be acceptable to the City prior to the user's initiation of the changes.

M. Publication of Violators

The City is required by Federal regulation to keep the public informed of all cases of significant violation. To accomplish this the City shall, annually, publish in a newspaper of local circulation a list of the users which were not in compliance with any Pretreatment Requirements or Standards at least once during the 12 previous months. A significant violation shall meet one or more of the following criteria:

1. Chronic violations of wastewater discharge limits, defined here as those in which sixty-six percent (66%) or more of all of the measurements taken during a six month period exceed (by any magnitude) the daily maximum limit or the average limit for the same pollutant parameter;
2. Technical Review Criteria (TRC) violations, defined here as those in which thirty-three percent (33%) or more of all of the measurements for each pollutant parameter taken during a six month period equal or exceed the product of the daily maximum limit or the average limit multiplied by the applicable TRC (TRC=1.4 for BOD, TSS, fats, oil and grease and 1.2 for all other pollutants except pH);
3. Any other violation of a pretreatment effluent limit (daily maximum or longer term average) that the City determines has caused, alone or in combination with other discharges, interference or pass through (including endangering the health of POTW personnel or the general public);
4. Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment or has resulted in the POTW's exercise of its emergency authority under 40 CFR 403 to halt or prevent such a discharge;



5. Failure to meet, within 90 days after the schedule date, a compliance schedule milestone contained in a local control mechanism or enforcement order for starting construction, completing construction, or attaining final compliance;
6. Failure to provide, within 30 days after the due date, required reports such as baseline monitoring reports, 90-day compliance reports, periodic self-monitoring report, and reports on compliance with compliance schedules;
7. Failure to accurately report noncompliance;
8. Any other violation or group of violations which the City determines will adversely affect the operation or implementation of the local pretreatment program.

The notification shall also summarize any enforcement actions taken against the user(s) during the same 12 months.

All records relating to compliance with Pretreatment Standards shall be made available to officials of the EPA or Approval Authority upon request.

N. Confidential Information

Information and data on a user obtained from reports, questionnaires, permit applications, permits and monitoring programs and from inspections shall be available to the public or other governmental agency without restriction unless the user specifically requests in writing and is able to demonstrate to the satisfaction of the City that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the user.

When requested by the person furnishing a report, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public but shall be made available upon written request to governmental agencies for uses related to this ordinance, the NPDES/KPDES Permit, Sludge Disposal System Permit and/or the Pretreatment Programs; provided, however, that such portions of a report shall be available for use by the State or any State agency in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics shall not be recognized as confidential information.

Information accepted by the City as confidential, shall not be transmitted to any governmental agency or to the general public by the City until and unless a ten-day notification is given to the user.

O. Recordkeeping Requirements

Any industrial user subject to reporting requirements established in this Ordinance shall maintain records of all information resulting from any monitoring activities. Such records shall include for all samples:

1. The date, exact place, method and time of sampling and the name of the person or persons taking the samples;
2. The dates analyses were performed;
3. Who performed the analyses;
4. The analytical techniques/methods used; and
5. The results of such analyses.

Any industrial user subject to the reporting requirements established in this Ordinance shall be required to retain, for a minimum of three (3) years, any records of monitoring activities and results (whether or not such monitoring activities are required) and shall make such records available for inspection and copying by the City, the Director and the Regional Administrator. The period of retention shall be extended during the course of any unresolved litigation regarding the industrial user or POTW or when requested by the Director or Regional Administrator.



## ARTICLE VII - FEES

### A. Purpose

This article provides for the recovery of costs from users of the POTW for the implementation and conduct of the program established herein. The applicable charges or fees shall be set forth in the City's Schedule of Charges and Fees.

### B. Charges and Fees

The City may adopt charges and fees which may include:

1. fees for reimbursement of costs of setting up and operating the City's Pretreatment Program;
2. fees for monitoring, inspections and surveillance procedures;
3. fees for reviewing accidental discharge procedures and construction;
4. fees for permit applications;
5. fees for filing appeals;
6. fees for consistent removal, by the POTW, of pollutants otherwise subject to Federal Pretreatment Standards;
7. other fees as the City may deem necessary to carry out the requirements contained herein.

These fees relate solely to the matters covered by this ordinance and are separate from all other fees chargeable by the City.

## ARTICLE VIII - POWERS AND AUTHORITY OF INSPECTORS

### A. Right to Enter Premises

The Superintendent and other duly authorized employees and representatives of the City and authorized representatives of applicable Federal and State regulatory agencies, bearing proper credentials and identification, shall be permitted to enter all properties for the purpose of inspection, observation, measurement, sampling and testing pertinent to discharges to the public sewer system in accordance with the provisions of this ordinance.

### B. Right to Obtain Information Regarding Discharge

Duly authorized employees and representatives of the City, bearing proper credentials and identification, are authorized to obtain information concerning character, strength and quantity of industrial wastes which have a direct bearing on the kind and source of discharge to the wastewater collection system.

### C. Access to Easements

Duly authorized employees and representatives of the City, bearing proper credentials and identification, shall be permitted to enter all private properties through which the City holds a duly negotiated easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair and maintenance of any portion of the wastewater facilities lying within said easement. All entry and subsequent work, if any, on said easement shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

### D. Safety

While performing the necessary work on private properties referred to in Section C of this Article, the Superintendent, or duly authorized employees of the City, shall observe all safety rules applicable to the premises established by the company and the company shall be held harmless for injury or death to City employees and the City shall indemnify the company against loss or damage to its property by City employees and against liability claims and demands for personal injury or property damage asserted against the company and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the company to maintain safe conditions as required by this Ordinance.

## ARTICLE IX - ENFORCEMENT

### A. General

The Superintendent may suspend the wastewater treatment service and/or a Wastewater Contribution Permit whenever such suspension is necessary, in the opinion of the Superintendent, in order to stop an actual or threatened discharge which is presenting or causing an imminent or substantial endangerment to the health or welfare of persons, the POTW or the environment.

Any user notified of a suspension of the wastewater treatment service and/or the Wastewater Contribution Permit shall immediately stop or eliminate the contribution. In the event of a user's failure to immediately comply voluntarily with the suspension order, the Superintendent shall take such steps as deemed necessary, including immediate severance of the sewer connection, to prevent or minimize damage to the POTW, its receiving stream or endangerment to any individuals. The Superintendent shall allow the user to recommence its discharge when the endangerment has passed, unless the termination proceedings set forth in Section E of this Article are initiated against the user.

An industrial user which is responsible, in whole or in part, for imminent endangerment shall submit a detailed written statement describing the causes of the harmful contribution and the measures taken to prevent any future occurrence to the Superintendent prior to the date of the hearing described in Section D of this article.

### B. Notification of Violation

Whenever the Superintendent finds that any industrial user has violated or is violating this Ordinance, or a wastewater permit or order issued hereunder, the Superintendent or his agent may serve upon said user written notice of the violation. Within ten (10) days of the receipt date of this notice, an explanation of the violation and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted to the Superintendent. Submission of this plan in no way relieves the user of liability for any violations occurring before or after receipt of the Notice of Violation.

### C. Administrative Orders

#### 1. Consent Orders

The Superintendent is hereby empowered to enter into Consent Orders, assurances of voluntary compliance, or other similar documents establishing an agreement with the industrial user responsible for the noncompliance. Such orders will include specific action to be taken by the industrial user to correct the noncompliance within a time period also specified by the order. Consent Orders shall have the same force and effect as administrative orders issued pursuant to paragraph 2 below.



2. Compliance Order

When the Superintendent finds that an industrial user has violated or continues to violate the ordinance or a permit or order issued thereunder, he may issue an order to the industrial user responsible for the discharge directing that, following a specified time period, sewer service shall be discontinued unless adequate treatment facilities, devices or other related appurtenances have been installed and are properly operated. Orders may also contain such other requirements as might be reasonably necessary and appropriate to the noncompliance, including the installation of pretreatment technology, additional self-monitoring and management practices.

3. Cease and Desist Orders

When the Superintendent finds that an industrial user has violated or continues to violate this Ordinance or any permit or order issued hereunder, the Superintendent may issue an order to cease and desist all such violations and direct those persons in noncompliance to:

- (a) Comply forthwith
- (b) Take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations and terminating the discharge.

D. Show Cause Hearing

The Superintendent may order any industrial user which causes or contributes to violation of this Ordinance or wastewater permit or order issued hereunder, to show cause why a proposed enforcement action should not be taken. Notice shall be served on the user specifying the time and place for the meeting, the proposed enforcement action and the reasons for such action, and a request that the user show cause why this proposed enforcement action should not be taken. The notice of the meeting shall be served personally or by registered or certified mail (return receipt requested) at least ten (10) days prior to the hearing. Such notice may be served on any principal executive, general partner or corporate officer. Whether or not a duly notified industrial user appears as noticed, immediate enforcement action may be pursued.

E. Termination of Permit

Significant industrial users proposing to discharge into the POTW, must first obtain a Wastewater Contribution Permit from the City. Any user who violates the following conditions of this ordinance or a Wastewater Contribution Permit or order, or any applicable State or Federal law, is subject to permit termination:

- a. Failure to accurately report the wastewater constituents and characteristics of its discharge;



- b. Failure to report significant changes in operations or wastewater constituents and characteristics;
- c. Refusal of reasonable access to the user's premises for the purpose of inspection, monitoring or sampling; or
- d. Violation of conditions of the permit.

Noncompliant industrial users will be notified of the proposed termination of their Wastewater Contribution Permit and be offered an opportunity to show cause why the proposed action should not be taken.

F. Treatment Upsets

Any industrial user which experiences an upset in operations that places it in a temporary state of noncompliance, which is not the result of operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation, shall inform the Superintendent thereof immediately upon becoming aware of the upset. Where such information is given orally, a written report thereof shall be filed by the user within five (5) days. The report shall contain:

- a. A description of the upset, its cause(s) and impact on the discharger's compliance status
- b. The duration of noncompliance, including exact dates and times of noncompliance and, if the noncompliance is continuing, the time by which compliance is reasonably expected to be restored
- c. All steps taken or planned to reduce, eliminate and prevent recurrence of such an upset

An industrial user which complies with the notification provisions of this section in a timely manner shall have an affirmative defense to any enforcement action brought by the Superintendent for any noncompliance with this ordinance or an order or permit issued hereunder by the user, which arises out of a violation attributable to and alleged to have occurred during the period of the documented and verified upset.

G. Treatment Bypasses

A bypass of the treatment system is prohibited unless all of the following conditions are met:

- a. The bypass was unavoidable to prevent loss of life, personal injury or severe property damage;
- b. There was no feasible alternative to the bypass, including the use of auxiliary treatment or retention of the wastewater; and
- c. The industrial user properly notified the Superintendent as described in the following paragraph.

Industrial users must provide immediate notice to the Superintendent upon discovery of an unanticipated bypass. If necessary, the Superintendent may require the industrial user to submit a written report explaining the cause(s), nature and duration of the bypass and the steps being taken to prevent its recurrence.

An industrial user may allow a bypass to occur which does not cause pretreatment standards or requirements to be violated, but only if it is for essential maintenance to ensure efficient operation of the treatment system. Industrial users anticipating a bypass must submit notice to the Superintendent at least ten (10) days in advance. The Superintendent may only approve the anticipated bypass if the circumstances satisfy those set forth in this section.

## ARTICLE X - PENALTIES

### A. Written Notice

Any person found to be violating any provision of this ordinance shall be served, by the City, with written notice stating the nature of the violation and providing a reasonable time limit for satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

### B. Revocation of Permit

Any person violating any of the provisions of this ordinance shall be subject to termination of its authority to discharge sewage into the City system. Such termination shall be immediate if necessary for the protection of the POTW. Said user may also have water service terminated. Any user who violates any condition(s) of this Ordinance, discharge permit, order or applicable State or Federal regulations is subject to having its Wastewater Contribution Permit revoked in accordance with the procedures of this Ordinance. Violations resulting in immediate permit revocation shall include, but not be limited to, the following:

- a. Failure of a user to factually report the wastewater constituents and characteristics of its discharge;
- b. Failure of the user to report significant changes in operations, processes, wastewater constituents and characteristics;
- c. Refusal of reasonable access to the user's premises for the purpose of inspection and sampling; and
- d. Violation(s) of any condition of the Wastewater Contribution Permit.

### C. Misrepresentation Falsifying Documents

Any industrial user who knowingly makes any false statements, representations or certifications in any application, record, report, plan or other document filed or required to be maintained pursuant to this ordinance, or Wastewater Contribution Permit, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required under this ordinance shall, upon conviction, be punished by a fine of not more than \$1,000.00 per violation per day or imprisonment for not more than one year or both.

### D. Destruction of POTW

No person(s) shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is part of the POTW. Any person(s) violating this provision shall be subject to immediate arrest under charge of disorderly conduct.



E. Legal Action

If any person discharges sewage, industrial wastes or other wastes into the City's wastewater disposal system contrary to the provisions of this ordinance or any order or permit issued hereunder, the Superintendent may commence an action for appropriate legal and/or equitable relief in the appropriate Court of this jurisdiction.

F. Injunctive Relief

Whenever an industrial user has violated or continues to violate the provisions of this ordinance or permit or order issued hereunder, the Superintendent, through counsel may petition the Court for the issuance of a preliminary or permanent injunction or both (as may be appropriate) which restrains or compels the activities on the part of the industrial user. The Superintendent shall have such remedies to collect these fees as it has to collect other sewer service charges.

G. Civil Penalties

Any industrial user who has violated or continues to violate this ordinance or any order or permit issued hereunder, shall be liable to the Superintendent for a civil penalty of not more than \$1,000.00 plus actual damages incurred by the POTW per violation per day for as long as the violation continues. In addition to the above described penalty and damages, the Superintendent may recover reasonable attorney's fees, court costs and other expenses associated with the enforcement activities, including sampling and monitoring expenses.

The Superintendent shall petition the Court to impose, assess and recover such sums. In determining amount of liability, the Court shall take into account all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration, any economic benefit gained through the industrial user's violation, corrective actions by the industrial user, the compliance history of the user, and any other factor as justice requires.

H. Criminal Prosecution

Any industrial user who willfully or negligently violates any provision of this ordinance or any orders or permits issued hereunder shall, upon conviction, be guilty of a misdemeanor, punishable by a fine not to exceed \$1,000.00 per violation per day or imprisonment for not more than one year or both.

In the event of a second conviction, the user shall be punishable by a fine not to exceed \$3,000.00 per violation per day or imprisonment for not more than 3 years or both.

I. Administrative Fines

Notwithstanding any other section of this ordinance, any user who is found to have violated any provision of this ordinance, or permits and orders issued hereunder shall be fined in an amount not to exceed one thousand dollars (\$1,000.00) per violation. Each day on which



noncompliance shall occur or continue shall be deemed a separate and distinct violation. Such assessments may be added to the user's next scheduled sewer service charge and the Superintendent shall have such other collection remedies as he has to collect other service charges. Unpaid charges, fines and penalties shall constitute a lien against the individual user's property. Industrial users desiring to dispute such fines must file a request for the Superintendent to reconsider the fine within ten (10) days of being notified of the fine. Where the Superintendent believes a request has merit, he shall convene a hearing on the matter within fifteen (15) day of receiving the request from the industrial user.

J. Liability

Any person violating any of the provisions of this ordinance shall become liable to the City of Brandenburg for any expense, loss or damage occasioned by the City's wastewater treatment facilities by reason of such violation.

ARTICLE XI - VALIDITYA. Inconsistent or Conflicting Ordinance

All other ordinances and parts of other ordinances inconsistent or conflicting with any part of this ordinance are hereby repealed to the extent of such inconsistency or conflict.

B. Separation Clause

The invalidity of any article, clause, sentence or provision of this ordinance shall not affect the validity of any other part of this ordinance which can be given effect without such invalid part or parts.

C. Effective Date of Ordinance

This ordinance shall be in full force and effect when it is adopted, signed and published as required by law.

GIVEN first reading and approval

October 14, 1991

GIVEN second reading and final adoption

November 11, 1991

PUBLISHED in the

Meadow County  
Messenger

November 14, 1991

APPROVED:

Carl T. Wells

Mayor

ATTEST:

Jo Anne Haley

City Clerk

# **Appendix L**

## **Corrective Action Plan (CAP)**

# City of Brandenburg

737 HIGH STREET POST OFFICE BOX 305 BRANDENBURG, KENTUCKY 40108 PHONE 270-422-4981 FAX 270-422-4983

August 15, 2016

Mr. Corey Craft  
Energy and Environment Cabinet  
Division of Enforcement  
300 Sower Blvd  
Frankfort, KY 40601

MAYOR  
Ronnie Joyner

CITY COUNCIL  
Bruce Fackler  
Carol Nelson  
Bill Basham  
Patsy Lusk  
Maggie Love  
Scotty Applegate

CLERK/TREASURER  
Amy Haynes

POLICE CHIEF  
Scotty Singleton

PUBLIC WORKS  
DIRECTOR  
Timothy J. Hughes, Jr.

Re: AI Name: Brandenburg WWTP  
AI No. 3115  
Case No. DOW -150453  
Activity No. ERF20150001  
Facility ID: KY0021474  
Meade County  
Corrective Action Plan

Dear Mr. Craft:

In response to your E-mail sent July 18, 2016, we offer the following for your consideration:

**Item 10** – Proper and Regular Operation and Maintenance to the Collection system and Wastewater Treatment Plant (WWTP) – Daily/Monthly/Yearly checklist covering all aspects of the collection system and wastewater treatment plant have been written in order for the operators to verify that all tasks/process control testing/and other maintenance is being performed in a timely manner.

Representatives from both GRW Engineers and Kentucky Rural Water visited the WWTP site on August 10, 2016 with City staff. It was determined that a Wastewater Facilities Plan Update should be completed prior to the onset of any construction projects. The completion of a Wastewater Facilities Plan Update will enable the City of Brandenburg to plan necessary wastewater collection and treatment improvements in a systematic manner. These improvements will allow the system to meet current and projected KPDES permit requirements.

The wastewater treatment plant has been in operation since August of 1994 with no major upgrades until June of 2014. Between June 2014 and June 2016 the City has spent \$120,921.75 on upgrades including new aerator, new electrical service, and new feed pumps for the chlorine and sulphur dioxide system. An itemized list follows:

- |   |             |
|---|-------------|
| • Materials to install aerators                                 | \$ 870.37   |
| • Submersible pump for chemical injection                       | \$ 359.90   |
| • Service run, wiring for chemical pump, transformers, injector | \$ 2,621.48 |

*"A City of Progress"*



• Service run for RAS pump	\$ 870.00
• 4 Aqua-Jet aerators	\$ 38,900.00
• Rewiring auger system	\$ 8,650.00
• 2 Aqua-Jet aerators	\$ 19,450.00
• 2 Aqua-Jet aerators	\$ 19,450.00
• Labor/material to install new clarifier drive and torque control	<u>\$ 29,750.00</u>
<b>Total</b>	<b>\$120,921.75</b>

The proposed Corrective Action Plan Schedule can be found on the following page. If you further questions, please contact me at my office, phone number 270-422-4981.

Sincerely,



Ronnie Joyner  
Mayor, City of Brandenburg

**Brandenburg Wastewater System Improvements Program  
Corrective Action Plan Schedule  
August 15, 2016**

<b><u>Task/Milestone</u></b>	<b><u>Completion Schedule</u></b>
Planning Phase Interim Financing Loan	
Funding Application	09-30-2016
Completion of Audits	09-30-2016
Funding Committed to Brandenburg	12-31-2016
Wastewater Collection System Mapping	01-31-2017
Wastewater Facilities Plan Update	09-30-2017
KYDOW Approval of Wastewater Facilities Plan Update	12-31-2017
Funding Application (Rural Development and/or SRF) for WWTP Improvements (2019 Funding Cycle)	09-30-2017
Wastewater Treatment Plant Upgrades	12-31-2021

**From:** [Craft, Corey \(EEC\)](#)  
**To:** [Pavoni, Joe](#)  
**Subject:** City of Brandenburg CAP  
**Date:** Wednesday, February 01, 2017 8:49:01 AM

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Mr. Pavoni,

The CAP submitted by the City of Brandenburg was accepted, I believe I spoke with TJ Hughes from the City of Brandenburg about this by phone, but no letter of acceptance was sent. Will this email suffice?

Thank you,

**Corey A. Craft**  
**Environmental Protection Specialist**  
**Division of Enforcement**  
**Kentucky Department for Environmental Protection**  
**300 Sower BLVD, 3<sup>rd</sup> Floor**  
**Phone (502) 782-6865**  
**Fax (502) 564-4245**  
**<http://dep-enforcement.ky.gov>**

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